CONFUSION HILL
HIGHWAY REALIGNMENT PROJECT

Mendocino County, California
District 1–Men–U.S. 101, KP 159.2/R162.2 (PM 98.9/R100.8)
01-397510

Draft Environmental Impact Report and Environmental Assessment

Prepared by the
U.S. Department of Transportation
Federal Highway Administration
and the
State of California Department of Transportation

Caltrans

Caltrans Metric

GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:
The California Department of Transportation and the Federal Highway Administration have prepared this draft Environmental Impact Report/Environmental Assessment, which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Mendocino County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization and/or mitigation measures.

What you should do:

- Please read this draft Environmental Impact Report/Environmental Assessment. Copies of the document are available at the locations listed below. Individual technical studies can be requested by contacting Steve Croteau at 707-441-5615, or at Steven_Croteau@dot.ca.gov.

1) California Department of Transportation, 1656 Union St., Eureka, CA
2) Humboldt County Library, Eureka Branch, 1313 3rd St., Eureka, CA
3) Mendocino County Library, Ukiah Branch,105 N. Main St., Ukiah, CA
4) Mendocino County Library, Willits Branch, 390 E Commercial St., Willits, CA
5) Garberville-Redway Chamber of Commerce, 733 Redwood Dr., Garberville, CA

- Attend the public meetings/hearings to be held: May 17, 2005, 4:30-6:30 PM, John Haynes Memorial Veteran's Hall, 483 Conger, Garberville, CA 95542, or on May 18, 2005, 4:30-6:30 PM, Eureka Public Marina, #1 Marina Way, Eureka, CA, 95501
- We welcome your comments. If you have any comments regarding the proposed project, please attend the public meeting and/or send your written comments to the Department by the deadline.
- Submit comments via postal mail to:

  Steven Croteau, Associate Environmental Planner
  California Department of Transportation, Environmental Management Branch
  P.O. Box 3700, Eureka, CA 95502-3700

- Submit comments via email to Steven_Croteau@dot.ca.gov.
- Submit comments by the deadline: June 17, 2005.

What happens next:
After comments are received from the public and reviewing agencies, Caltrans and the Federal Highway Administration may: (1) choose to construct one of the evaluated alternatives, (2) undertake additional environmental studies, or (3) abandon the project.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy of an alternative format please call (707)-445-6444. TDD users may contact the California Relay Service TDD line at 1-800-735-2922, or Voice Line at 1-800-735-2922, or Caltrans TDD phone number at (707) 445-6463.

SCH# 2004052014
01-MEN-101 KP 159.2/R162.2
(PM 98.9/R 100.8)

The project would relocate the existing U.S. 101 alignment at the Confusion Hill slide in Mendocino County, KP 159.2 (PM 98.9) to KP R162.2 (PM R100.8), approximately 13 km (8 miles) north of Leggett

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration, and

THE STATE OF CALIFORNIA
Department of Transportation

_____
Date of Approval

_____
Charles Fielder
District 1 Director
California Department of Transportation

_____
Date of Approval

_____
Gene Fong
Division Administrator
Federal Highway Administration

Summary

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act and the National Environmental Policy Act. The Caltrans is the lead agency under the California Environmental Quality Act and the FHWA is lead agency under the National Environmental Policy Act.

One of the primary differences between the National Environmental Policy Act and the California Environmental Quality Act is the way significance is determined. Under the National Environmental Policy Act, significance is used to determine whether an Environmental Impact Statement, or some lower level of documentation, will be required. The National Environmental Policy Act requires that an Environmental Impact Statement be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under the California Environmental Quality Act may not be of sufficient magnitude to be determined significant under the National Environmental Policy Act. Under the National Environmental Policy Act, once a decision is made regarding the need for an Environmental Impact Statement, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. The National Environmental Policy Act does not require that a determination of significant impacts be stated in the environmental documents.

The California Environmental Quality Act, on the other hand, does require the Department to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant environmental impact that cannot be mitigated to a level of "less than significant," then an Environmental Impact Report must be prepared. Each and every significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the California Environmental Quality Act Guidelines list a number of mandatory findings of significance, which also require the preparation of an Environmental Impact Report. There are no types of actions under the National Environmental Policy Act that parallel the findings of mandatory significance of the California Environmental Quality Act. Please see Chapter 3 of this document for a discussion regarding the effects of this project and California Environmental Quality Act significance.

As stated above, some impacts determined to be significant under the California Environmental Quality Act may not lead to a determination of significance under the National Environmental Policy Act. Because the National Environmental Policy Act is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for

the National Environmental Policy Act. One of the most commonly seen joint document types is an Environmental Impact Report/Environmental Assessment (EIR/EA).

Following receipt of public comments on the Draft Environmental Impact Report/Environmental Assessment and circulation of the Final Environmental Impact Report/Environmental Assessment, the lead agencies will be required to take actions regarding the environmental document. The Department will determine whether to certify the Environmental Impact Report and issue Findings and a Statement of Overriding Considerations and the Federal Highway Administration will decide whether to issue a Finding of No Significant Impact (FONSI) or to require an Environmental Impact Statement.

Overview of Project Area

The proposed project is located on U.S. 101, 13 km (8 miles) north of Leggett and 30 km (18.5 miles) south of Garberville in Mendocino County. The project is located in a rural area, surrounded by mixed evergreen forest and old growth redwood forest, and is adjacent to the South Fork of the Eel River. U.S. 101 is considered the "lifeline" of the northern California coast, being the only major north-south route serving the region.

Purpose and Need

Within the project limits, U.S. 101 bisects an ancient and active rockslide. The slide is approximately 1000 meters (3000 ft) wide at the roadway level and more than 350 meters (1100 ft) high measured from its toe at the river. Over the last 17 years, the roadway has regularly experienced slipouts, retaining wall failures, and debris flows. Within the last few years, debris flows and road closures have been occurring with greater frequency and magnitude. There is some urgency as geotechnical studies indicate the slide is progressively losing strength, which will result in continued debris flow onto the highway, and the potential for long roadway closures and more extensive highway repairs in the near future.

Ten closures during the 2002/2003 winter season discouraged tourists, hindered the movement of goods, kept children and teachers from their schools, impacted emergency response, and generated a high level of concern for residents needing to use this segment of roadway on a daily basis. A catastrophic slide at Confusion Hill could close U.S. 101 in both directions for six months or more. A one-direction closure could cost the traveling public an estimated $1.7 million per month in travel delay and vehicle operating costs. A complete closure could require a 402 km (250-mile) detour and could cost an estimated $7.1 million per month in travel delay and added vehicle-operating costs. Maintaining U.S. 101 open and in good condition between the San Francisco Bay Area and Oregon is critical to the economic well being of the North Coast.

The purpose of the project is to provide a reliable transportation route on this segment of U.S. 101, allowing for the local and interregional movement (e.g., Northwest California and Southern Oregon) of goods, emergency vehicles, residents, and recreational travelers.

The project is needed because the route is no longer dependable due to frequent closures and high maintenance costs, and there is no local detour available for highway traffic.

Proposed Action

The project would relocate approximately 3 km (1.9 miles) of U.S. 101 from approximately 12.9 km (eight miles) north of Leggett to approximately 30 km (18.5 miles) south of Garberville in Mendocino County (Figure 1.1). All build alternatives would replace the existing two-lane conventional highway with a two-lane conventional highway on a new relocated alignment, and would include the construction of two new bridges across the South Fork of the Eel River. The new facility would have two 3.6 meter (12-ft) lanes with 2.4 meter (8-foot) shoulders, and the bridges would be approximately 40-feet wide and consist of two 3.6 meter (12-ft) lanes and 2.4 meter (8-ft) shoulders.

Alternatives

Alternative 1 (Black Alignment): Alternative 1 would relocate U.S. 101 by constructing two bridges and a through-cut on the peninsula west of the existing roadway (Figure 1.4). This alternative would require acquisition of right of way in the locations of the through-cut and two bridge abutments. The alignment would require the removal of at least 18 three-foot or greater diameter at breast height redwood trees, six of which are directly in front of the Campbell Brothers at Confusion Hill business. The bridges at the northern and southern end of the project would be 43 and 77 meters high (140 and 253 ft.), and 162 and 425 meters long (531 and 1,395 ft.), respectively.

Alternative 2 (White Alignment): Alternative 2 would relocate U.S. 101 by constructing two bridges and a through-cut on the peninsula west of the existing roadway (Figure 1.5). The White Alignment begins approximately 76 meters (250 ft.) south of the Black Alignment and includes a slight realignment of an existing curve at the south end of the project. In order to reduce project costs and impacts to redwood trees, an approximately 146 meters (480 ft.) long, 1 to 7.6 meters (3-25 ft.) high retaining wall is proposed at a curve at the southern limits of the project. This alignment would require the removal of at least four three-foot or greater diameter at breast height redwood trees, and U.S. 101 would diverge from its present alignment approximately 240 feet south of the Campbell Brothers at Confusion Hill business. An at-grade intersection would be constructed to maintain access to the Redwoods River Resort and the Campbell Brothers at

Confusion Hill business. The bridges at the northern and southern end of the project would be 43 and 78 meters high (140 and 255 ft.), and 162 and 378 meters long (531 and 1,239 ft.), respectively.

Alternative 3 (Blue Alignment): Alternative 3 would relocate U.S. 101 by constructing two bridges and a through-cut on the peninsula west of the existing roadway (Figure 1.6). The Blue Alignment begins 15 meters (50 ft.) south of the White Alignment and includes a slight realignment of an existing curve at the south end of the project. The Blue Alignment would require acquisition of a portion of the Redwoods River Resort, including the removal of a residence, lodge and store, and would realign U.S. 101 away from the Campbell Brothers at Confusion Hill business. An at-grade intersection would be constructed to maintain access to the Redwoods River Resort and the Campbell Brothers at Confusion Hill business. This alignment would also require removal of at least five three-foot or greater diameter at breast height redwood trees. The bridges at the northern and southern ends of the project would be 43 and 72 meters high (140 and 236 ft.), and 162 and 402 meters long (531 and 1,320 ft.), respectively.

Alternative 7 (No-Build): Under this alternative no work would be performed to address the unreliability of the route at this location. The current series of closures and repairs at this location would be expected to continue, causing regular delays, lengthy detours to the traveling public, and continued significant expense to state and federal governments.

Preferred Alternative

After comparing and weighing the benefits and impacts of all of the feasible alternatives, the project development team identified Alternative 2 (White Alignment) as the preferred alternative. Final identification of a preferred alternative would occur subsequent to the public review and comment period.

Project Impacts

Table S.1 Summary of Potential Impacts

Potential Impact		Alternative 1 (Black Alignment)	Alternative 2 (White Alignment)	Alternative 3 (Blue Alignment)	No-Build Alternative
Cultural Resources		1 Prehistoric Site	None	1 Historic Site	None
Timberland		20-24 hectares (50-60 acres)	20-24 hectares (50-60 acres)	20-24 hectares (50-60 acres)	None
Relocation		None	None	1 business and 3 residences	None
Visual		Two bridges and a cut through the peninsula on the west bank of the South Fork of the Eel River	Two bridges and a cut through the peninsula on the west bank of the South Fork of the Eel River	Two bridges and a cut through the peninsula on the west bank of the South Fork of the Eel River	Permanent Man-made features along existing U.S. 101 (e.g., retaining walls, rock slope protection, and hillside netting)
Vibration		Short term construction impacts to resources located within 100 feet of new highway structures.	Short term construction impacts to resources located within 100 feet of new highway structures.	Short term construction impacts to resources located within 100 feet of new highway structures.	None
Redwood Trees (greater than 3 feet diameter at breast height)		18	5	6	None
Natural Communities	**Redwood Forest**	0.4 hectare (1 acre)	0.5 hectares (1.2 acres)	0.6 hectares (1.6 acres)	None
	Mixed Evergreen Forest	3.2 hectares (7.8 acres)	2.9 hectares (7.1 acres)	3.1 hectares (7.7 acres)	

Permits and Consultations

The following permits and consultations are anticipated for this project:

Agency	Permit/Approval	Status
National Oceanographic and Atmospheric Administration	Section 7 Consultation for Threatened and Endangered Fish Species	Biological Assessment submitted after draft EIR/EA circulation
United States Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Bird Species	Biological Assessment submitted after draft EIR/EA circulation
California State Historic Preservation Officer	California State Historic Preservation Officer Concurrence on eligibility	Approved
National Park Service Wild and Scenic River	Concurrence letter stating there would be no effect on the South Fork of the Eel River	Letter received April 19, 2005
Army Corps of Engineers	404 certification for discharge of dredged or fill material into the South Fork of the Eel River	Obtained prior to construction
California Department of Fish and Game	Section 2080 for Threatened and Endangered Species	Obtained after draft EIR/EA circulation
California Department of Fish and Game	1602 Streambed Alteration Agreement	Obtained prior to construction
Regional Water Quality Board	National Pollution Discharge Elimination System (NPDES), storm water permit, and 401 certification compliance	Obtained prior to construction

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Chapter 1 Proposed Project

1.1 Purpose and Need

Introduction

Caltrans and the Federal Highway Administration propose to realign U.S. 101, between approximately 12.9 km (8 miles) north of Leggett (KP 159.2, PM 98.9) and 30 km (18.5 miles) south of Garberville (KP 162.2, PM 100.8) in northern Mendocino County. The total length of the project is 3.1 km (1.9 miles), starting near the Campbell Brothers at Confusion Hill and Redwoods River Resort businesses at the southern limits and ending near Red Mountain Creek at the northern limits (Figures 1.1 and 1.2). The project would realign U.S. 101 and construct two bridges across the South Fork of the Eel River. The existing segment of U.S. 101 is winding, with curves having design speeds as low as 30 mph. Lane widths are 3.6 meters (12 ft.), with shoulders of 1.2 meters (4 ft.) or less.

The project was initiated due to the existing highway's maintenance and operational deficiencies, and unreliability for the traveling public. Within the project limits, the existing alignment crosses an active rockslide, resulting in frequent rock and debris flow, road closures, and high maintenance costs.

U.S. 101 is considered the "lifeline" of the North Coast, being the only major north/south route serving the region. Functionally classified as a rural principal arterial, it is part of the California Freeway and Expressway System, and is included in the National Highway System. Further, U.S. 101 is designated as part of the "SHELL" system (Sub-system of Highway for the movement of Extra-Legal permit Loads), and is a "High Emphasis and Focus Route" on the Interregional Road System. Maintaining U.S. 101 between the San Francisco Bay Area and Oregon is critical to the economic well being of this region because it carries high volumes of year-round commercial trucking, and recreational traffic during the summer months.

The project is included in the 2004/2005 Fiscal Year State Highway Operation and Protection Program (SHOPP), and is proposed for funding through the Federal Major Damage Restoration Program. The project is also included in the 2003 Mendocino County Regional Transportation Plan.

Figure 1.1 Project Location

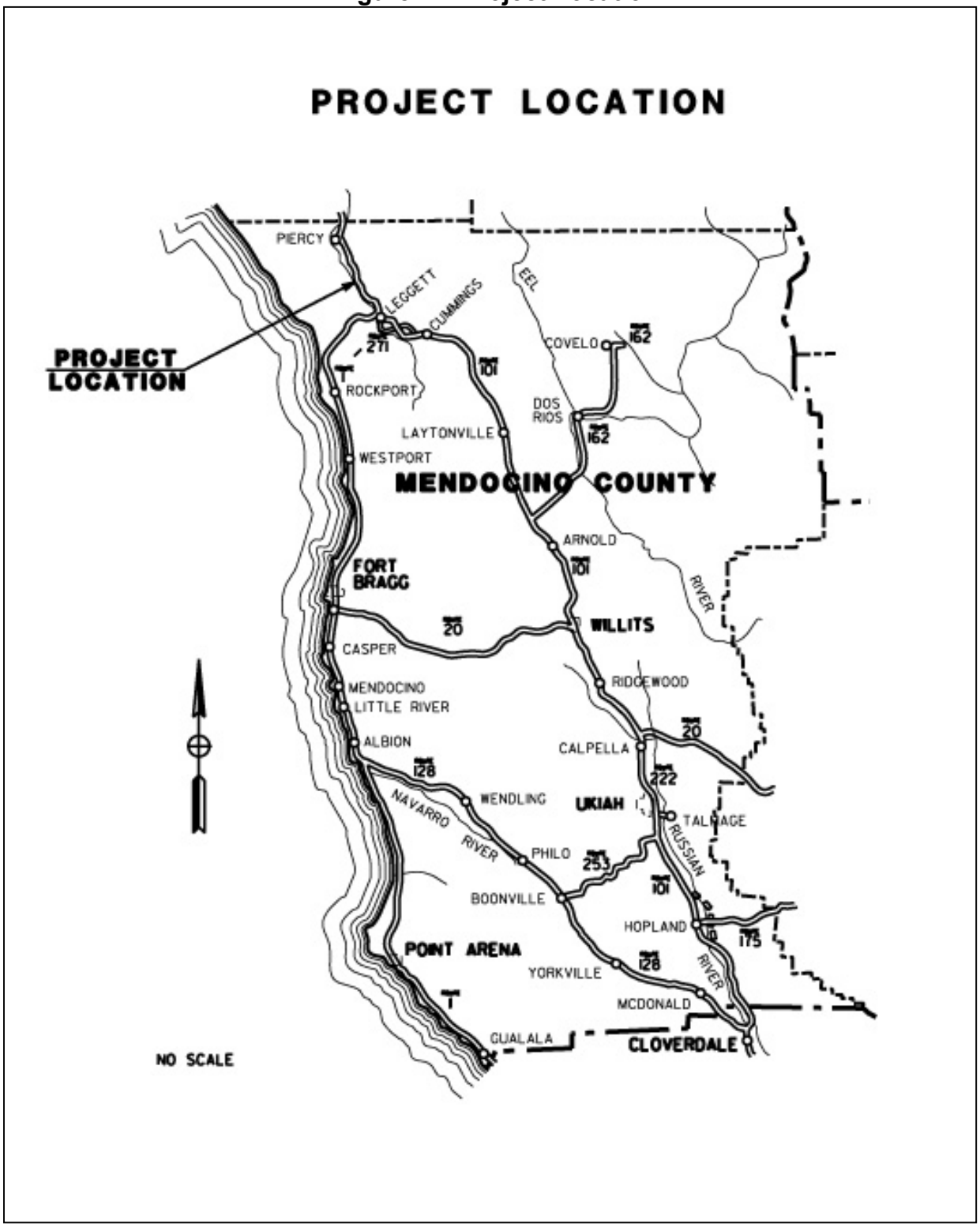
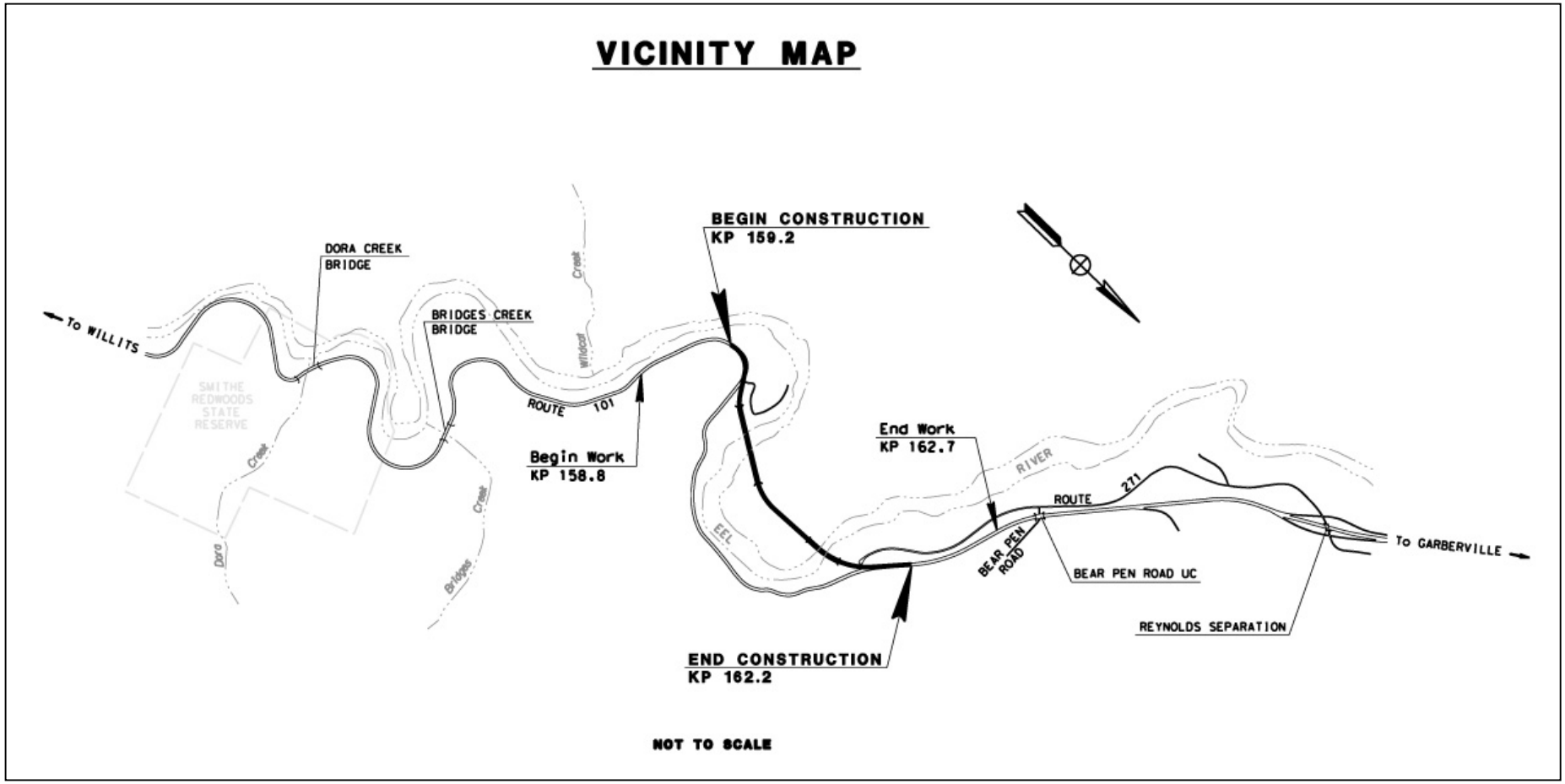


Figure 1.2 Project Vicinity



Purpose

The purpose of the project is to provide a reliable route on this segment of U.S. 101 at the Confusion Hill slide area, and to keep U.S. 101 open to vehicular traffic, including large commercial trucks, emergency vehicles, local residents, and seasonal recreational travelers.

Need

Within the project limits, U.S. 101 experiences frequent road closures due to rockslide activity. The slide is approximately 1000 meters (3000 ft.) wide at the roadway level and more than 365 meters (1100 ft.) high measured from its toe at the river. The slide is several thousand years old, and has caused increasing maintenance and repair work on the roadway for the last 17 years. Recent geotechnical investigations indicate the hillside has increasing instability, providing the potential for more frequent road closures and more extensive highway repairs.

Ten closures during the 2002/2003 winter season discouraged tourists, hindered the movement of goods, kept children and teachers from schools, impacted emergency response, and has generated a high level of concern for residents needing to use this segment of roadway on a daily basis. A catastrophic slide at Confusion Hill could close U.S. 101 in both directions for six months or more. A one-direction closure could cost the traveling public an estimated $1.7 million per month in travel delay and vehicle operating costs. A complete closure could require a 402 km (250-mile) detour and could cost an estimated $7.1 million per month in travel delay and added vehicle-operating costs. Between 1996 and 2003, over $14 million in repairs and maintenance were spent within the project limits. Maintaining U.S. 101 open and in good condition between the San Francisco Bay Area and Oregon is critical to the economic well being of the North Coast.

1.2 Project Description

This section describes the proposed action and the design alternatives that were developed by a multi-disciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts. The alternatives are Alternative 1 (Black Alignment), Alternative 2 (White Alignment), Alternative 3 (Blue Alignment), and the No-Build Alternative.

The project is located in Mendocino County on U.S. 101 from 12.9 km (8 miles) north of Leggett (KP 159.2, PM 98.9) to 29 km (18 miles) south of Garberville (KP 162.2, PM 100.8) in northern Mendocino County. The project covers a distance of 3.1 km (1.9 miles), starting near the Campbell Brothers at Confusion Hill and the Redwoods River Resort businesses at the southern limits and ending near Red Mountain Creek at the northern limits. Within the project limits, the

existing segment of U.S. 101 is winding, with curves having design speeds as low as 30 mph. Lane widths are typically 3.6 meters (12 ft.), with paved shoulder widths 1.2 meters (4 ft.) or less.

The project would construct a two-lane conventional highway facility to bypass the slide-prone area by realigning U.S. 101 to the west. The project would also include the construction of two bridges over the South Fork of the Eel River (Figures 1.1 and 1.2). The new facility (including the bridges) would have two 3.6 meter (12 ft.) lanes and 2.4 meter (8 ft.) shoulders. The bridges would be 12 meters (40 ft.) wide, and would also have 3.6 meter (12 ft.) lanes and 2.4 meter (8 ft.) shoulders. For build alternatives, the columns supporting the bridges would be slant leg or vertical, and would avoid the river channel by staying above the ordinary high water mark.

Construction of the north and south bridges are estimated to take approximately two and three years, respectively. The project would also require disposal sites to accommodate approximately 183,493 cubic meters (240,000 cubic yards) of excess material.

Existing U.S. 101

The removal of the existing roadway (decommissioning) and restoration of the surrounding topography would be included for all build alternatives. The restoration would include the removal of all man-made structures, as identified in Figure 1.8. In addition, potential rockslide debris would be removed (as much as possible without further destabilizing the hillside) to reduce the flow of debris into the Eel River. Removed material would be used as fill along the existing road alignment in order to recreate the natural topographic and drainage features in the area. Private Driveways would be perpetuated at the northern and southern limits of the project for local property access only (Figure 1.8).

1.3 Alternatives

Alternatives

All build alternatives would include the relocation of U.S. 101 to the west of the existing route, and would have the same design features (e.g., lane and shoulder width). The alternatives differ only in highway alignment, project limits, and potential environmental impacts. All build alternatives have the same northern project limits. The southern project limits differ and are described below and shown in Figure 1.3. The typical cross-section of the new facility is shown in Figure 1.7.

Alternative 1 (Black Alignment): Alternative 1 would relocate U.S. 101 by constructing two bridges and a through-cut on the peninsula on the west bank of the South Fork of the Eel River

(Figure 1.4). This alternative would require acquisition of right of way in the locations of the through-cut and two bridge abutments. The alignment would require the removal of at least 18 redwood trees of three-foot or greater diameter at breast height, six of which are directly in front of the Campbell Brothers at Confusion Hill business. The bridges at the northern and southern end of the project would be 43 and 77 meters high (140 and 253 ft.), and 162 and 425 meters long (531 and 1,395 ft.), respectively.

Alternative 2 (White Alignment): Alternative 2 would relocate U.S. 101 by constructing two bridges and a through-cut on the peninsula on the west bank of the South Fork of the Eel River (Figure 1.5). The White Alignment begins 76 meters (250-ft.) south of the Black Alignment and includes a slight realignment of an existing curve at the south end of the project. An approximately 100 meter (328 -t.) long, six and a half to 7 meter (23-ft.) high retaining wall would need to be constructed at the curve. This alignment would require removal of at least four redwood trees of three-foot or greater diameter at breast height, and U.S. 101 would diverge from its present alignment approximately 73 meters (240-ft.) south of Campbell Brothers at Confusion Hill. An at-grade intersection would be constructed to maintain access to the Redwoods River Resort and the Confusion Hill business. The bridges at the northern and southern end of the project would be 43 and 78 meters high (140 and 255-ft.), and 162 and 378 meters long (531 and 1,239-ft.), respectively.

Alternative 3 (Blue Alignment): Alternative 3 would relocate U.S. 101 by constructing two bridges and a through-cut on the peninsula on the west bank of the South Fork of the Eel River (Figure 1-6). The Blue Alignment begins 15 meters (50-ft.) south of the White Alignment and includes a slight realignment of an existing curve at the south end of the project. The Blue Alignment would require acquisition of a portion of the Redwoods River Resort, including the removal of a residence, lodge and store, and would realign U.S. 101 away from the Campbell Brothers at Confusion Hill business. An at-grade intersection would be constructed to maintain access to the Redwoods River Resort and the Confusion Hill business. This alignment would also require removal of at least four redwood trees of three-foot or greater diameter at breast height. The bridges at the northern and southern ends of the project would be 43 and 72 meters high (140 and 236-ft.), and 162 and 402 meters long (531 and 1,320-ft.), respectively.

Alternative 7 (No-Build): Under this alternative no work would be performed to address the unreliability of the route at this location. The current series of closures and repairs would continue with the potential for a catastrophic slide event that could disrupt service on U.S. 101 for six months or more.

Figure 1.3 Project Alternatives

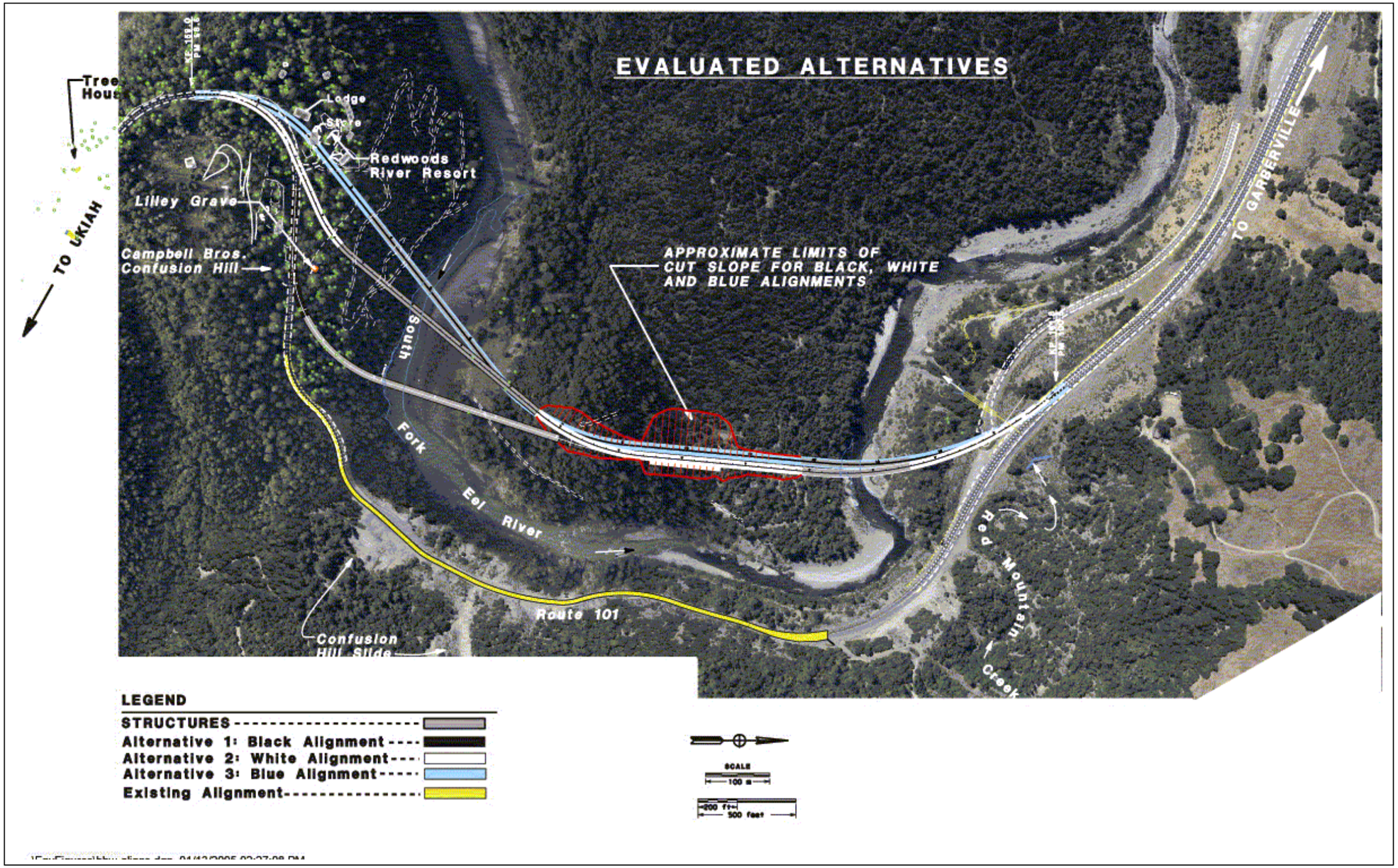


Figure 1.3 Project Alternatives

Figure 1.4 Alternative 1 (Black Alignment)

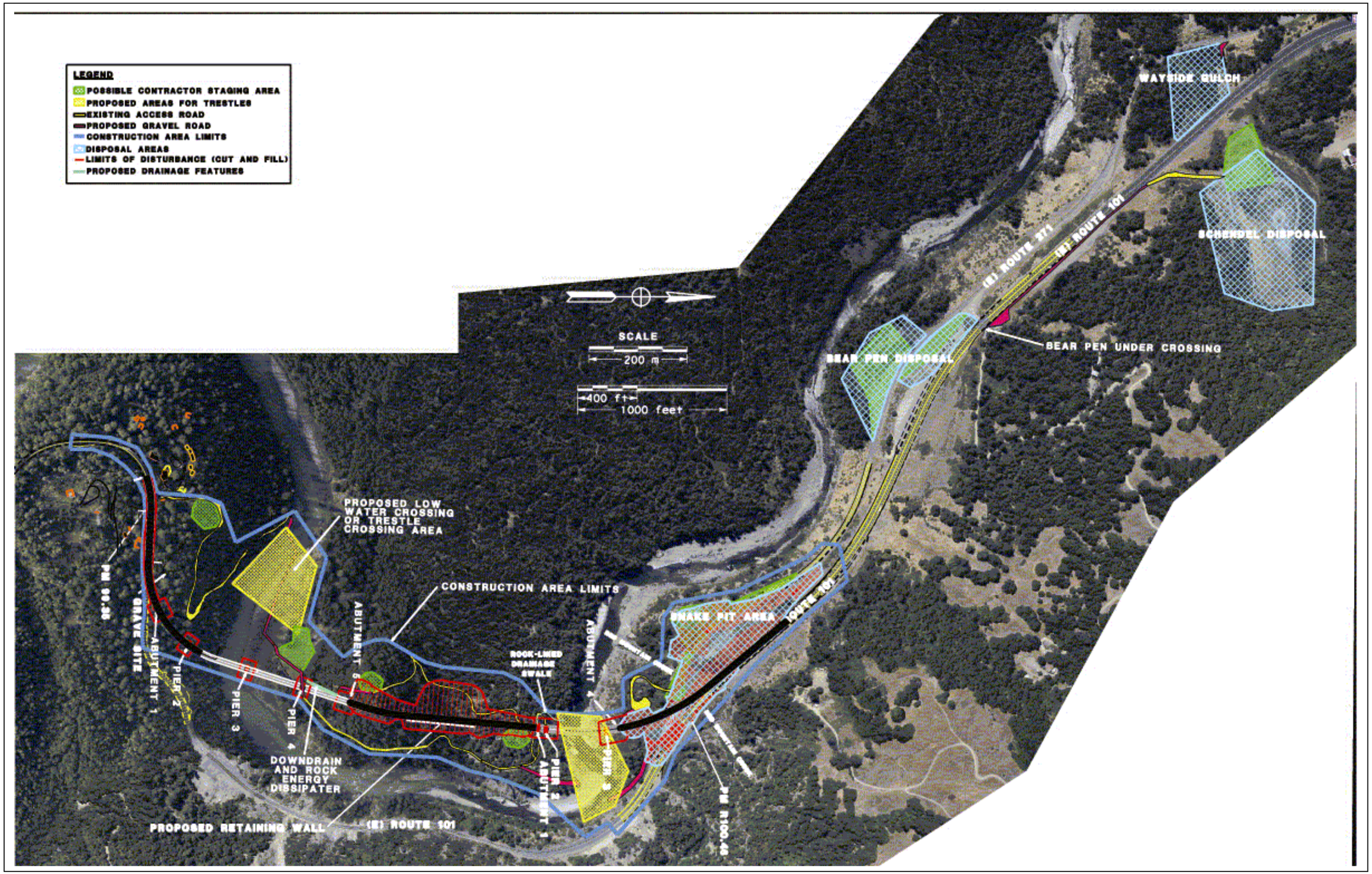


Figure 1.4 Alternative 1 (Black Alignment)

Figure 1.5 Alternative 2 (White Alignment)

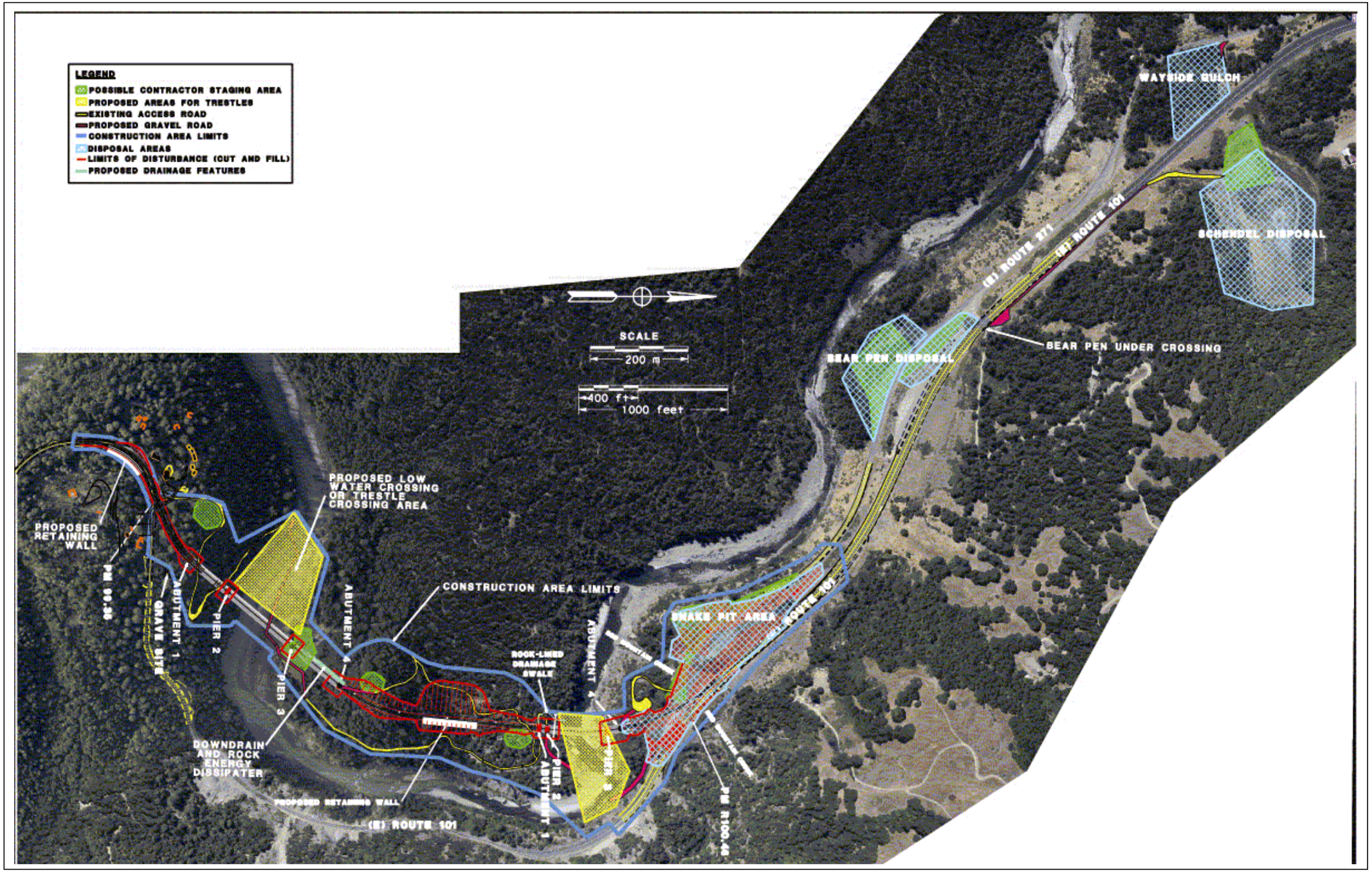


Figure 1.5 Alternative 2 (White Alignment)

Figure 1.6 Alternative 3 (Blue Alignment)

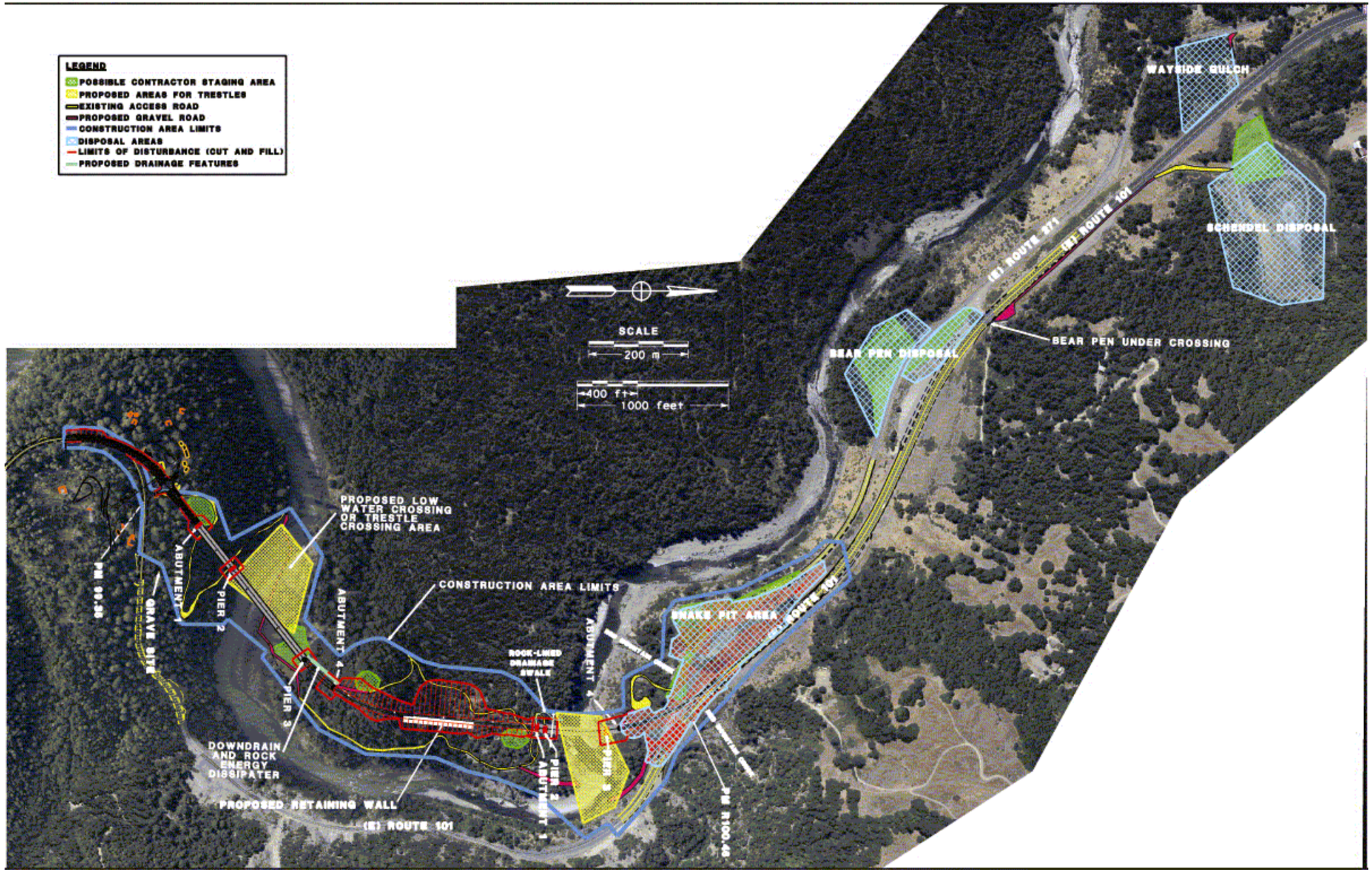
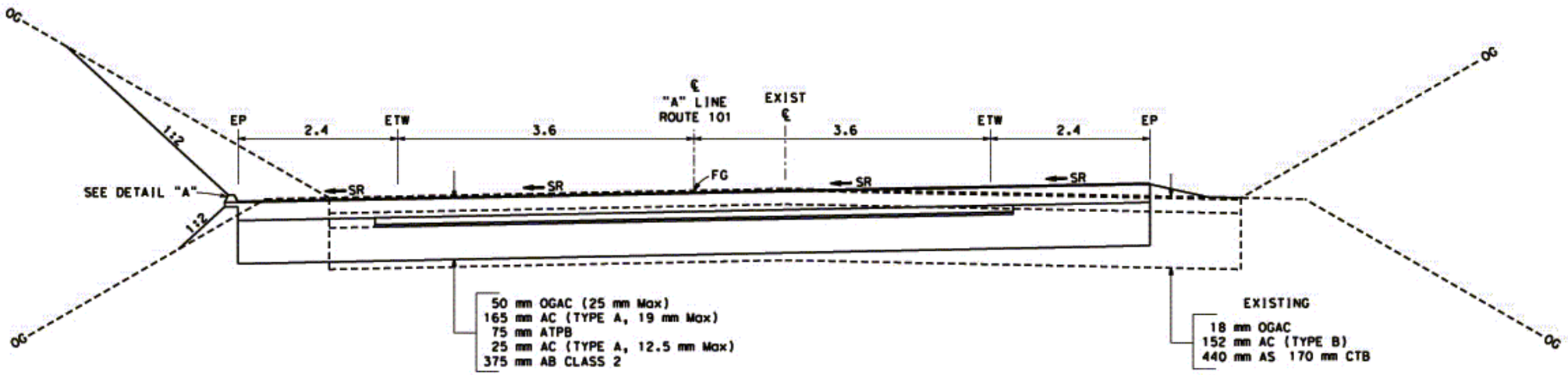


Figure 1.6 Alternative 3 (Blue Alignment)

Figure 1.7 Typical Highway Cross-Section

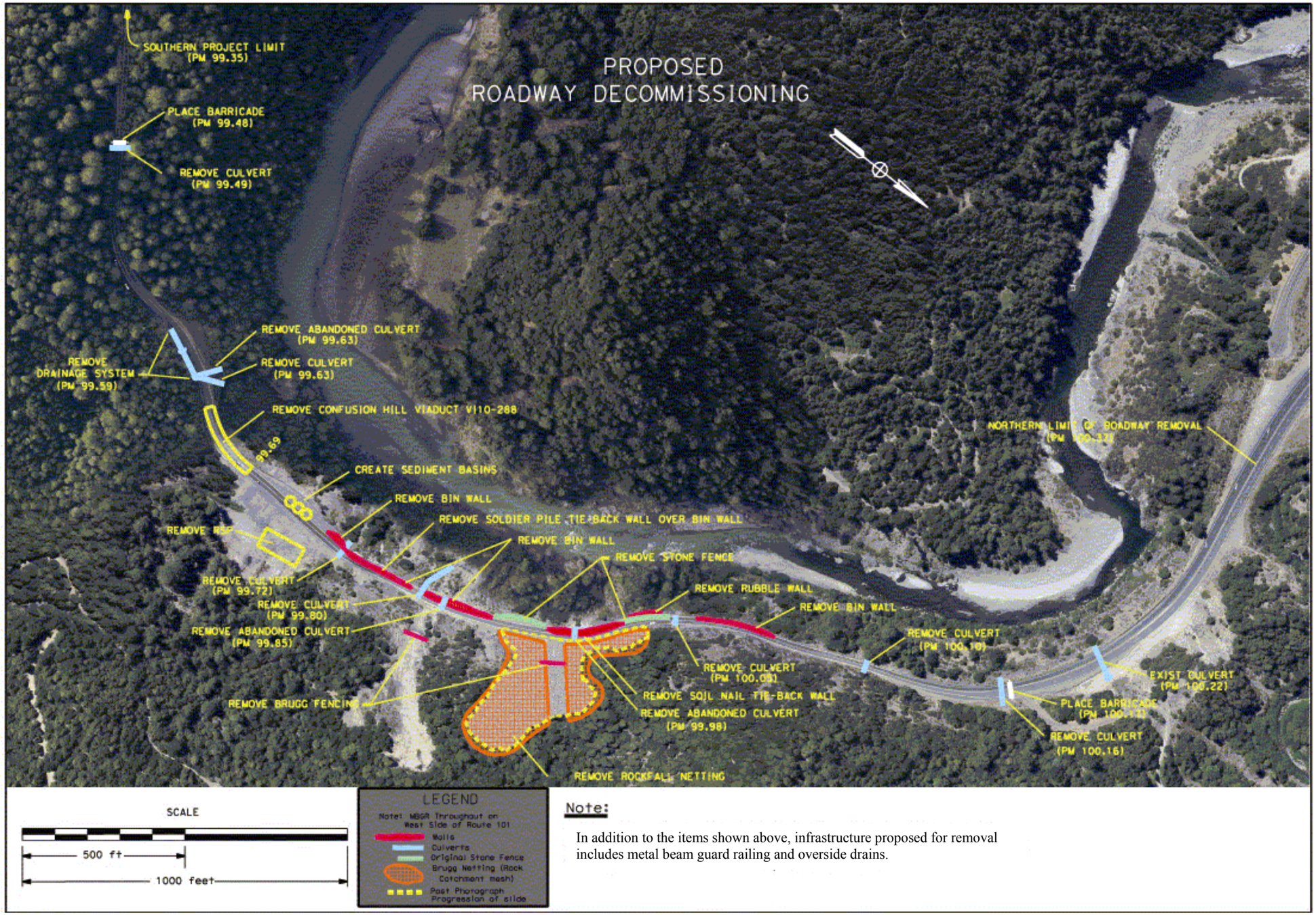


"A"10+00 To "A"10+25

TYPICAL CROSS SECTION

Figure 1.7 Typical Highway Cross-Section

Figure 1.8 U.S. 101 Decommissioning



Note:

In addition to the items shown above, infrastructure proposed for removal includes metal beam guard railing and overside drains.

Figure 1.8 U.S. 101 Decommissioning

1.4 Comparison of Alternatives

A Value Analysis Study was completed on March 30, 2004. Resource agencies and the public were invited to participate, with the study's goal being the identification of areas where cost savings and reduction of potential impacts could be achieved, while still meeting the project's purpose and need. The team evaluated the project's potential to impact trees, wildlife habitat, local businesses, historic and archaeological resources, and visual resources. The team also evaluated the projects' costs, reliability, and constructibility. Table 1-2 shows a comparsion of the three build alternatives and the No-build alternative, with only resources potentially impacted included. The data in the table indicate Alternative 2 (White Alignment) would have the fewest overall impacts. For example, Alternative 2 would have the potential to impact 5 redwood trees, whereas Alternative 1 would have the potential to impact over 18 redwoods, and Alternative 3 would have the potential to impact 5 redwood trees and three structures.

Table 1.1 Comparison of Alternatives

	Redwood Forest (hectares/acres)	Mixed Ever Green Forest (hectares/acres)	Redwood Trees (greater than 3 foot diameter at breast height)	Relocations	Cultural Resources Impacts
Alternative 1 (Black Alignment)	0.4/1.0	3.2/7.8	18	None	Yes
Alternative 2 (White Alignment)	0.5/1.4	2.9/7.1	5	None	None
Alternative 3 (Blue Alignment)	0.6/1.6	3.1/7.7	6	1 business 3 residences	Yes
Alternative 7 (No-Build)	None	None	None	None	None

1.5 Public Coordination

Public coordination occurred throughout the project's history, and is summarized in Chapter 3, Comments and Coordination.

1.6 Preferred Alternative

After comparing the benefits and impacts of all of the feasible alternatives (Table 1-1), the project development team identified Alternative 2 (White Alignment) as the preferred alternative. Final identification of a preferred alternative would occur subsequent to the public review and comment period.

1.7 Alternatives Dropped From Further Consideration

A Value Analysis Study was performed for the project. The analysis considered the costs and benefits of each alternative, and recommended to Caltrans District Executive Staff that the following alternatives be dropped from further study (concurrence obtained November 17, 2004).

Alternative 4 (Red Alignment): This alignment is similar to Alternative 3 (Blue Alignment). Alternative 4 begins approximately 91 meters (300-ft.) south of Alternative 3 with the southern portion of the alignment proceeding through the middle of Redwoods River Resort (Figure 1.9). This alternative would require the removal of 40 to 45 redwood trees of three-foot or greater diameter at breast height. An at-grade intersection would be constructed to maintain access to the Confusion Hill business.

Alternative 5 (Green Alignment): Alternative 5 is similar to Alternative 3 (Blue Alignment), but the southern portion of the alignment requires a large cut slope east of the existing facility impacting 45 to 50 redwood trees of three-foot or greater diameter at breast height. U.S. 101 would be moved 90 meters (295-ft.) away from the Campbell Brothers at Confusion Hill business (Figure 1.9).

Alternative 6 (Existing Highway/Purple Alignment): Alternative 6 would maintain the existing U.S. 101 alignment with improvements incorporated and intended to stabilize the active rockslide. This would require the excavation of a large cut slope to stabilize the existing Confusion Hill slide (Figure 1.9). Stabilizing the slide would be attempted by creating a one and one-half horizontal by one vertical slope, resulting in the excavation of approximately 5.35 million meters^3 (7.85 million yards$^{3)}$ of disposal material. The alternative would cost in excess of $150 million. The large cut slope and corresponding removal of more than 180 redwood trees of three-foot or greater diameter at breast height would also result in extensive visual impacts and redwood and mixed conifer forest habitat loss. Geotechnical stability analysis indicates that the cut slope would not be likely to intercept the slide plane and fully stabilize the slope. Stabilization of the slope could be achieved if the cut slope were laid back at a flatter slope, but this would generate over 14.5 meters^3 (19.6 million yards^3)of disposal material and cost in excess of $250 million.

The option of maintaining the existing U.S. 101 alignment through construction of a viaduct or bridge was also explored. A retaining wall alternative was determined to be impractical because the necessary retaining wall tiebacks could not be constructed to meet the length and strength requirements needed to stabilize the roadway and hillside due to the slide's massive width and height. At 1000 meters (3000-ft.), the slide is also too wide to span with a viaduct. According to Caltrans geologists, the slide plane is 24.4 meters (80-ft.) to 36.6 meters (120-ft.) below the roadway and slide movement cannot be controlled by geotechnical means or by constructing structures that span the slide plane.

1.8 Project Decision-Making Process

After the public circulation period, all comments will be considered, and Caltrans and the Federal Highway Administration will make a final determination of the project's effect on the environment. In accordance with the California Environmental Quality Act, Caltrans will certify that the project complies with the California Environmental Quality Act, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. Caltrans would then file a Notice of Determination with the State Clearinghouse that will identify whether the project would have significant impacts. Mitigation measures would be included as conditions of project approval, findings made, and a Statement of Overriding Considerations adopted. Similarly, if the Federal Highway Administration determines the action does not significantly impact the environment, the Federal Highway Administration will issue a Finding of No Significant Impact (FONSI) in accordance with the National Environmental Policy Act.

1.9 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction:

Table 1.2 Required Permits

Agency	Permit/Approval	Status
National Oceanographic and Atmospheric Administration	Section 7 Consultation for Threatened and Endangered Fish Species	Biological Assessment submitted after draft EIR/EA circulation
United States Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species	Biological Assessment submitted after draft EIR/EA circulation
California State Historic Preservation Officer	California State Historic Preservation Officer Concurrence on eligibility	Approved
National Park Service Wild and Scenic River	Concurrence letter stating there would be no effect on the South Fork of the Eel River	Letter received April 19, 2005
California Department of Fish and Game	Section 2080.1 Agreement for Threatened and Endangered Species	Obtained after draft EIR/EA circulation
California State Historic Preservation Officer	California State Historic Preservation Officer Concurrence on eligibility	Historic Property Survey Report submitted on March 4, 2005
Army Corps of Engineers	404 certification for discharge of dredged or fill material into the South Fork of the Eel River	Obtained prior to construction
California Department of Fish and Game	1602 Streambed Alteration Agreement	Obtained prior to construction
Regional Water Resources Board	National Pollution Discharge Elimination System (NPDES), storm water permit, and 401 certification compliance	Obtained prior to construction

Figure 1.9 Alternatives Withdrawn From Further Consideration

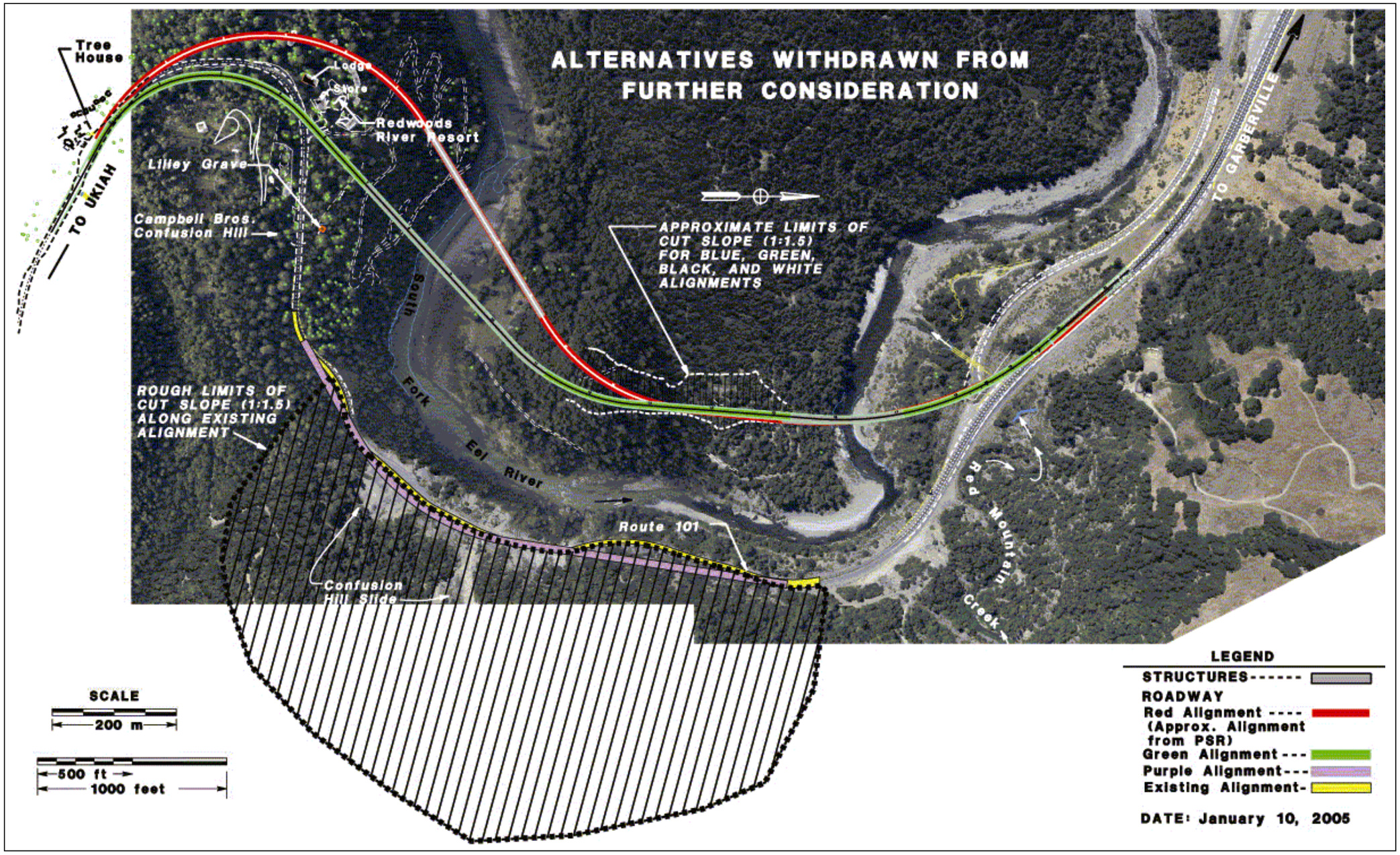


Figure 1.9 Alternatives Withdrawn from Further Consideration

Chapter 2 Affected Environment

As part of the scoping and environmental analysis conducted for the project, the following environmental resources were considered, but no potential for adverse impacts to these resources was identified. Consequently, there is no further discussion regarding these resources in this document.

- Traffic, transportation, pedestrian, and bicycle facilities would not be adversely affected due to:
    1) Except during the final tie-ins at the end of construction, construction activities would occur off the existing U.S. 101 alignment. U.S. 101 would remain open during construction. Furthermore, the project is not capacity increasing, therefore traffic volumes and travel-times would not be altered.
    2) Highway facilities and services would remain open during construction.
    3) Pedestrian or bicycle facilities would remain open during construction.
- Paleontological Resources: no temporary or permanent impacts would be anticipated because:
    1) The formations that occur in the project area are considered to have low, or no potential for yielding sensitive paleontological resources.
    2) The largest fossil repositories in California have not reported any sensitive paleontological resources from the project area.
- Hydrology and Floodplain: according to the Floodplain and Hydrology Report completed September 2004, all build alternatives would be constructed outside of floodplain areas, therefore no permanent impacts would be anticipated.
- Energy Resources: according to an Energy Study completed in November 2004, when comparing energy used during construction and operation with energy saved by not having to maintain the existing highway (e.g., debris removal, vehicle delays resulting in long-term idling, and long detours), the project would not result in substantial energy impacts.
- Special-Status Plant Species: protocol surveys found no special-status plant species within the project limits.
- Disposal Sites: Five optional disposal sites were identified (Schendel, Wayside Gulch, Bear Pen 1& 2, and Snake Pit, see Figure 1.4). With the exception of Wayside Gulch, each location is currently composed of either weeds or bare earth. Wayside Gulch consists of mixed evergreen forest. These sites have been studied and cleared for potential environmental impacts with the exception of visual and biological resources (see section 2.7, Visual Resources and section 2.13, Biological Resources).

- Noise effects: according to a noise study completed in November 2004, the project would not increase noise levels to a point of having a negative effect on the businesses and residences in the area. Federal regulations require the consideration of noise abatement measures when project noise levels approach or exceed noise abatement criteria as stated in 23CFR772. Studies indicated the nearest noise receptors to the preferred Alternative 2 (White Alignment)—residence above Redwoods River Resort store and residence adjacent to Redwoods River Resort store—is 63 decibels and 56 decibels, respectively (Table 2.1).

Table 2.1 Project Decibel Levels

Noise Receptor	Existing (Noise) Decibel Level	Anticipated Decibel Level for Alternative 2
Redwoods River Resort Lodge	64	64
Redwoods River Resort Store and Upstairs Residence	63	63
Nearest Redwoods River Resort Cabin to White Alignment	55	55
Redwoods River Resort (Residence Just North of Redwoods River Resort Store)	55	56

Studies also indicated that if the Alternative 2 were built, noise levels would not increase for other buildings in the area (e.g., Campbell Brothers Confusion Hill, Redwoods River Resort Lodge, and the cabins at the Redwoods River Resort).

Permanent noise level increases associated with Alternatives 1 and 3 (Black and Blue Alignments) would not occur for local businesses and residences. Alternative 1 would not move U.S. 101 closer to any receptors, and Alternative 3 would require the relocation of all four potentially affected receptors listed in Table 2.1.

Noise associated with construction would be temporary, and would be limited to the hours between 8 a.m. and 6 p.m., excluding periods when concrete pouring requires extended hours. Concrete pours would occur for a total of approximately 50 nights (between the hours of 6 p.m. and 6 a.m.) over the 3-year construction period. The closest noise receptor to a location where concrete equipment would be staged would be the northern most residential dwelling at the Redwoods River Resort. The residence would be approximately 115 meters (350 feet) from the nearest staging area (near the proposed Alternative 2 south bridge south abutment). At this distance, studies indicate during concrete pours decibel levels would be between 58 and 62, which is comparable to existing noise levels (Table 2.1).

Affected Environment

This chapter describes the existing resources in the project area and identifies the likely impacts of implementing the proposed project. Each subsection below will describe the present conditions (Affected Environment), discuss the likely impacts of building the proposed project (Impacts), and indicate what measures would be taken to mitigate those impacts (Avoidance, Minimization, and/or Mitigation Measures).

2.1 Land Use

This section evaluates how the land is used (e.g., residential, commercial, timber) in the project area, and the potential for the project to change land use pattens.

2.1.1 Existing and Future Land Use

Background

The proposed project is located about 11.3 km (7 miles) south of the Humboldt County Line in the Eel River canyon in northern Mendocino County. U.S. 101 is the dominant man-made feature in the area, providing access for both tourists and commodities through this area.

The nearest incorporated city is Willits, a community of 5,000 about 80.5 km (50 miles) south on U.S. 101. Leggett (approximately 300 residents) is located about 12.9 km (8 miles) south of the project area, and Piercy (approximately 90 residents) is located 4.8 km (3 miles) north of the project area. Garberville, home to 850 residents, is 24 km (15 miles) north along U.S. 101, and Redway, with 1,200 residents, is about 4.8 km (3 miles) north of Garberville.

Within the project limits, U.S. 101 runs along the edge of the Eel River canyon. The area is predominantly covered by mixed conifer forest and is used for timber management.

There are three unique community facilities in or near the project area that attract recreational visitors annually: Campbell Brothers at Confusion Hill, the World Famous Tree House, and Redwood River Resort campground and recreational vehicle (RV) park.

Existing and Future Land Use

The majority of the project area is within the county designated Forest Land Districts. The Redwoods River Resort and the Tree House are located within this land designation (Figure 2.1).

At the southern limits of the project there is a small tract of land designated as Rural Community District. The Campbell Brothers at Confusion Hill business is located within this land designation (Figure 2.1).

With the exception of this project, future land conversion is not planned within the project limits.

2.1.2 Consistency with State, Regional, and Local Plans and Programs

Mendocino County General Plan

The project area is in unincorporated Mendocino County's inland area. Land use in this area is outlined in the County's General Plan and in the Inland Zoning Code. Currently the County's General Plan is in the process of being updated. Until the General Plan Update is adopted (anticipated in the fourth quarter of 2006), the 1981 General Plan contains the adopted goals, objectives, and policies for the County.

Forest Land/Timber Production Zones

The majority of the project area is within the county designated Forest Land Districts (Figure 2.1), in which the minimum parcel size is 65 hectares (160 acres). Forest Lands are meant for the production and harvesting of timber and timber-related products. Some processing of timber and related commercial activities are allowed under this zoning, but there are no mills or other timber processing facilities in the project area.

Forest Lands are usually made up of land that may produce timber, as well as smaller parcels and contiguous lands that contribute to the efficient management of timber resource lands.

In the project area, most of the Forest Land area is undeveloped forest. Most of the land zoned Forest Land in the project area is also Timber Production Zone land. The western peninsula and the land contiguous to it west of the South Fork of the Eel River is Timber Production Zone land. Much of the land east of the South Fork of the Eel River in this area is also Timber Production Zone land. None of the three Timber Production Zone parcels on the western peninsula are currently large enough to conform to the County Zoning Code's minimum parcel size of 65 hectares (160 acres) for Timber Production Zone zoning. The largest parcel is 59 hectares (145 acres). Two smaller parcels (one 1.6 hectare and one 0.8 hectare [4 and 2 acre parcels]) are located along the Eel River on the western peninsula.

Public Facilities

Just south of the project area is a large area zoned as Public Facilities Land, that is part of the Smithe Redwoods State Reserve, a 269 hectare (665 acre) park in the California State Parks system. As the name suggests, Public Facilities Land are set aside for public uses, such as parks,

roadways, or county facilities. The State of California owns a 8.5 hectare (21 acre) parcel along U.S. 101 just north of the Confusion Hill slide area that is designated Public Facilities Land (Figure 2.1).

Rural Community District

A variety of uses are allowed under the county designated Rural Community District designation, with the intention that a mixture of uses (residential, commercial, industrial) are compatible on a small scale in a rural community. The maximum density for homes in Rural Commercial areas is one per 557 square meters (557 meters[6,000 square ft] being the minimum parcel size for residential uses).

Circulation

The General Plan's Circulation Element endorses the development of U.S. 101 between Leggett and Red Mountain Creek. The element also states that the county must provide an adequate, well-maintained, efficient and safe network of state highways that form the central element of the region's highway, road and street systems, and provides for both the regional and inter-regional transportation needs of the county.

Safety

The Safety Element states that soil stability along proposed access routes (e.g., U.S. 101) must be a significant factor in land use planning. The element also describes landslides that result in road closures as, "essentially an unacceptable risk, since isolated valleys and rural settlements can be cut off by road closures. Interrupted access could escalate a minor emergency (local flooding or sickness for instance) to a major one. Thus, people living in an outlying area, although not subject to slide damage, could be endangered by a slide closing an access road."

Regional Transportation Plan

The Mendocino Council of Governments is the regional transportation planning agency for Mendocino County, and is responsible for preparing the Regional Transportation Plan for the county. The Regional Transportation Plan summarizes the region's long-term transportation goals, objectives, and policies. Within the project limits, the 2003 Regional Transportation Plan describes U.S. 101 as a top priority for highway improvements.

State Water Resources Control Board – Watershed Management Initiative

The State Water Resources Control Board prepared a watershed management initiative for the North Coast in January 2002, including the Eel River Watershed. As stated in this plan "the primary issues associated with water quality in the Eel River [Watershed Management Area] are focused on the beneficial uses for drinking water supply, recreation, and the salmonid fishery."

This initiative describes the Eel River Watershed as encompassing nearly 9583 square km (3,700 square miles) of highly erodable soils in steep mountains. In addition to having numerous recreational uses, the Eel River is described as the third largest producer of salmon and steelhead in the State, with a large recreational fishing industry.

This project would comply with the State Water Resources Control Board Watershed Management Initiative for the South Fork of the Eel River. Measures would be taken to follow the initiatives, goals, and strategies for river and watershed preservation.

Timber Harvest Plans

The California Department of Forestry and Fire Protection reviews and approves landowners' plans to harvest timber. The California Department of Forestry review process ensures that private property owners are in compliance with State and federal regulations for both timber removal and protection of the environment. Timber Harvest Plans run for three years, with two one-year extensions available.

Two Timber Harvest Plans are currently active in the project area. A Timber Harvest Plan for Coombs Tree Farm, located east of the project area, was recently approved. If this plan is active for the maximum amount of time (five years), it may be active during construction of the proposed project. The project is not likely to interfere with timber harvest activities planned for Coombs Tree Farm property. A Timber Harvest Plan is currently active for a portion of the Campbell-Hawthorne property on the western peninsula, northwest of the project area. The proposed project would not pass through this harvest area, and conflicts with harvest activities are unlikely.

Caltrans Route Concept Report – U.S. 101

The Route Concept Report is a planning document which describes Caltrans' conceptual improvement options for a given transportation route or corridor. Considering reasonable financial constraints and projected travel demand over a 20-year planning period, the Route Concept Report considers transportation facility needs for each route or corridor.

The concept for U.S. 101 through the majority of Mendocino County is a four-lane freeway or expressway. Due to funding issues and the substantial need on this segment of highway, the project area is one exception to this concept; the portion between Leggett and Red Mountain Creek is expected to remain a two-lane highway through the next 20 years. Therefore, the proposed project is consistent with the Route Concept Report.

2.1.3 Impacts

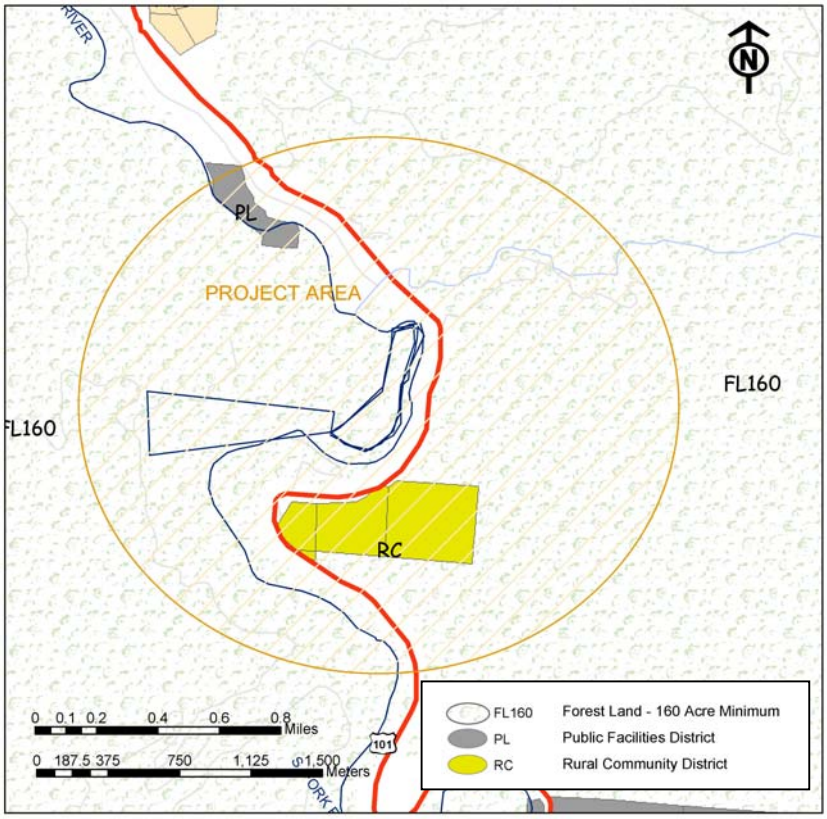
Mendocino County General Plan

The proposed project would be consistent with the County General Plan. Coordination with the regulatory agencies charged with protecting the area's natural resources would ensure that impacts to resources are minimized.

Timber Production Zones

The project area is surrounded by Timber Production Zones land. All of the proposed build alternatives would require the use of some Timber Production Zones land. However, the parcels potentially impacted do not meet the County's zoning code, therefore no Timber Production Zone Lands would be impacted by the proposed project.

Figure 2.1 Land Use



The impact to Timber Production Zones land in this area, particularly on the western peninsula, would be to subdivide a large parcel (APN 053-250-09), creating smaller parcels (see Table 2.2). Two smaller parcels (APNs 053-250-07 and 053-250-08) would be separated from the rest of the western peninsula by the new roadway. Access would continue to be available to these parcels, as it currently is, by either crossing the Eel River or approaching them from the east.

Table 2.2 Timberland Production Zone Parcels in the Project Area

Parcel Number	Hectares/Acres	Owner	Impact
053-250-09	59/145.6	Eagles Redwood Inc.	Highway alignment passes through the middle (acquisition of 50-60 acres)
053-250-07	1.6/3.9	Eagles Redwood Inc.	None
053-250-08	0.7/1.8	Coombs Tree Farms Inc.	None

None of the three parcels on the western peninsula are currently large enough to conform to the County Zoning Code's minimum parcel size of 65 hectares (160 acres) for Timber Production Zones zoning.

APN 053-250-09

The new highway alignment would pass through the middle of parcel 053-250-09 (currently 59 hectares/145.6 acres), requiring the direct acquisition of 20 to 24 hectares (50 to 60 acres).

APN 053-250-07 and APN 053-250-08

No right of way would be required from either of the two smaller parcels located adjacent to the South Fork of the Eel River on the western peninsula.

Parcels

Alternative 1 (Black Alternative)

Alternative 1 would pass through a parcel located between U.S. 101 and the river in the vicinity of the Campbell Brothers Confusion Hill business, 97 hectares (239 acres) in size (APN 053-270-06). This alternative would require approximately 0.6 hectares (1.47 acres) from this parcel, leaving 0.57 hectares (1.42 acres).

Alternative 2 (White Alternative)

Alternative 2 would pass through a parcel located between U.S. 101 and the river in the vicinity of Redwoods River Resort, 0.5 hectares (1.22 acres) in size (APN 053-270-11). Alternative 2 would require approximately 0.2 hectares (0.4 acres) from this parcel, leaving less than an acre. This alternative would also use a small portion of APN 053-270-06 (approximately 0.1 hectares [two-tenths of an acre]).

Alternative 3 (Blue Alternative)

Alternative 3 would use only the western portion of a 0.5 hectares (1.13 acre) parcel located between U.S. 101 and the Eel River, just east of Redwoods River Resort. Parcel 053-270-06 is currently undeveloped and is owned by a local landowner. If the parcel is not acquired in full, the remaining parcel (approximately 0.2 hectares [half an acre]) would be left.

Housing

Alternative 3 (Blue Alignment) would result in the loss of four mobile homes, currently located at Redwoods River Resort. Even within the context of this area's very small housing market, the loss of these mobile homes–estimated at more than 30 years old–would not have an appreciable impact on the supply of housing in the area.

Circulation

By creating a new roadway across the western peninsula, in an area designated Timber Production Zones land, the project may be inconsistent with Circulation Policy 9(b), which emphasizes that improvements to U.S. 101 should avoid breaking down agricultural (in this case, timber production) land patterns. However, this is seen as the only practicable means of complying with other goals and policies of the Circulation Element, such as Circulation Goal 1, which strives for a safe and efficient transportation system, and Section I-2.01(B) Policy 2, which emphasizes that State highways should provide for the mobility needs of commerce and agriculture. By ensuring that timber harvests can occur without the delays associated with frequent slides, the project may contribute to, rather than impair, agricultural land use patterns in this area.

Safety

The proposed project is driven by concerns of the type expressed in the goals and policies of the County's Safety Element. The project would eliminate an unacceptable risk (e.g., the location of a major roadway at the middle of a landslide). The project would also improve safety by removing a potential obstacle to timely response by emergency vehicles.

2.1.4 Avoidance, Minimization, and Mitigation Measures

For all build alternatives, in order to avoid and minimize impacts on land use the following would apply:

- Access to parcels would not change
- Public access would be restricted to the western bank of the South Fork of the Eel River
- The project would be consistent with local, regional, and state plans

2.1.5 Cumulative Impacts

Due to avoidance and minimization measures, cumulative impacts on land use would not be anticipated.

2.1.6 Wild and Scenic Rivers and Section 4(f)

Regulatory Setting

Section 4(f) of the Department of Transportation Act of 1966, codified in Federal law at 49 USC §303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl, and historic sites."

Section 4(f) specifies that "[t]he Secretary [of Transportation] may approve a transportation program or project…requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if—

(1) there is no prudent and feasible alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Departments of Agriculture and Housing and Urban Development in developing transportation projects and programs that use lands protected by section 4(f).

In general, a section 4(f) "use" occurs with a Department of Transportation-approved project or program when (1) section 4(f) land is permanently incorporated into a transportation facility; (2) when there is a temporary occupancy of section 4(f) land that is adverse in terms of the section 4(f) preservationist purposes as determined by specified criteria (23 CFR §771.135[p][7]); and (3) when section 4(f) land is not incorporated into the transportation project, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under section 4(f) are substantially impaired (constructive use) (23 CFR §§771.135[p][1] and [2]).

According to the Federal Highway Administration's Section 4(f) Policy Paper:

"Publicly-owned waters of designated wild and scenic rivers are protected by Section 4(f). Publicly-owned lands in the immediate proximity of such rivers may be protected by Section 4(f) depending on the manner in which they are administered by the Federal, States, or local government which administers the land."

Projects affecting Wild and Scenic Rivers are subject to the National Wild and Scenic Rivers Act (16 USC 1271) and the California Wild and Scenic Rivers Act (Pub. Res. Code sec. 5093.50 et seq.). Furthermore, Wild and Scenic Rivers are subject to Section 4(f) guidelines.

There are three possible types of Wild and Scenic Designations:

1. Wild: undeveloped, with river access by trail only
2. Scenic: undeveloped, with occasional river access by road
3. Recreational: some development is allowed, with road access

A Section 4(f) Policy Paper prepared by the Federal Highway Administration in March 2005 states that Section 4(f) applies to the construction of bridges over a Section 4(f) resource "if piers or other appurtenances are placed on the park, recreation, wildlife refuge or waterfowl refuge or historic site. Section 4(f) also applies if the bridge harms the purposes for which these lands were established or adversely affects the historic integrity of the historic site."

Affected Environment

The South Fork of the Eel River has been designated as a Wild and Scenic River at both the State and federal levels. One-hundred fifty-six km (97 miles) of the Eel River have been designated as "Wild", 45 km (28 miles) as "Scenic", and 439 km (273 miles) as "Recreational." Within the project limits, the river is designated as Recreational (some development is allowed, with road access). Because the river was designated a Wild and Scenic River through State sponsorship, and because the South Fork is not entirely publicly-owned, no management plan is available for the portion of the river that runs through the project area.

Adjacent to the Redwoods River Resort, an unpaved road leads down the hillside to beaches and fishing holes along the river. Similarly, at Standish-Hickey State Recreation Area farther south, trails lead to the river. River access is a component of the advertising for both of these facilities. Directly north of the Confusion Hill Slide there is a rough, unpaved road off of Route 271 that leads to what locals know as the Snake Pit swimming hole. Red Mountain Creek flows into the South Fork of the Eel River at this point. The access area, in which an unpaved clearing serves as a parking lot, is owned by Caltrans. There is no development on site. In this area, the river canyon is wide and allows easy access to the river.

Throughout the project area, when the river's water level is high enough kayaking and drift boating are popular activities. Access to the river for fishing and swimming contribute to the area's attractiveness to tourists from across California.

Impacts

Build Alternatives

Alteration of the Free Flowing Nature of the River

All build alternatives include the construction of two new bridges over the South Fork of the Eel River. However, these bridges are being designed to avoid the placement of structures in the 100 year flood plain. Permanent impacts to the river's flow would not occur as a result of the project.

Alteration of the Setting

Two new bridges over the river would alter the river's setting. Currently, there are no highway crossings of the river between Leggett and Piercy, making the western side of the river canyon wild and inaccessible, especially as perceived by visitors to the area. With two bridges crossing the river, the setting would change for river users, for whom the river canyon would have new man-made features crossing it, and for drivers, who would now be able to cross the river to the western side of the canyon.

Additionally, most of the Snake Pit swimming area cannot currently be seen from U.S. 101, which adds an element of seclusion. This portion of the river is both accessible to residents of the area, and isolated from the through traffic that uses the river canyon.

Construction

Construction of the project would require three construction seasons, with most of the work being conducted between March and September and bridge construction occurring year-round. During construction, the project area would not be conducive to recreational uses. Furthermore, the access road to the river located adjacent to the Redwoods River Resort would be closed during construction. Redwoods River Resort currently has its own river access trail which would not be impacted. Equipment for the construction of the north and south bridges, and for construction on the western side of the river would include cranes, pile drivers, vibratory hammers, excavators, bulldozers, and several other large pieces of equipment. Additionally, some blasting may be required to construct cuts in the rock on the western side of the river.

Recreation

The access road to the river located adjacent to the Redwoods River Resort would be closed during construction. Redwoods River Resort currently has its own river access trail which would not be impacted. Parking at the Snake Pit beach area would be temporarily closed during construction. River use and access (e.g., swimming, kayaking, etc.) through the bridge construction zone would not be restricted. During the bridge construction phase of the project, netting would be placed around structures and equipment (where necessary) to prevent tools or

materials from falling into the river or on river users. All means possible would be taken to protect river users from accidental, construction-related injury.

No-Build Alternative

Alteration of the Free Flowing Nature of the River

This alternative would not add any structures to the river or its canyon. Future rockslides would likely result in the need to construct retaining walls or other structures in order to keep U.S. 101 traversable.

Alteration of the Setting

This alternative could alter the setting, as future slides could require the addition of new man-made elements (retaining walls, side hill viaducts, etc.).

Section 4(f) Determination

Given the proposed project would not construct any permanent features within a Section 4(f) property, and would not place any permanent features within a Federal designated Wild and Scenic River, the Federal Highway Administration determined Section 4(f) does not apply.

Wild and Scenic Rivers Act: National Park Service Coordination

Caltrans coordinated with the National Park Service to determine the project's applicability to the Federal Wild and Scenic Rivers Act, and the potential need for a Section 7 evaluation under the Act. The National Park Service submitted a letter (Appendix C, National Park Service Letter) identifying areas of concern, and stated if properly addressed in the Environmental Impact Report/Environmental Assessment, then the confusion hill by-pass project would not have a "direct and adverse effect on the values for which such river was established" as outlined in Section 7 of the Federal Wild and Scenic Rivers Act.

2.2. Growth Inducement

This section evaluates the potential for the project to provide opportunities for growth within the project vicinity. Growth inducement can occur when a specific project provides access to previously inaccessible or difficult to reach locations. Growth can also occur if a project significantly reduces traveler commute times.

2.2.1 Regulatory Setting

The Council on Environmental Quality regulations, which implements the National Environmental Policy Act of 1969, requires evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The Council on Environmental Quality regulations, 40 CFR 1508.8, refers to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act also requires the analysis of a project's potential to induce growth. The California Environmental Quality Act guidelines, Section 15126.2(d), require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…"

The Mendocino County General Plan provides a regulatory constraint on growth.

2.2.2 Affected Environment

The project area is rural and largely undeveloped. The western side of the South Fork of the Eel River is not accessible in this area except to vehicles that are able to ford the river or by access through private timber company property west of Leggett. Zoning is primarily for timber production. Conditions do not favor large-scale development of any kind, either residential or commercial. The terrain is mountainous and there is no community infrastructure, either water or sewer.

The southern limits of the project has a small area designated as Rural Community District (see Figure 2.1, section 2.1.3, Land Use). This designation allows for one residential unit per 557 meters (6,000 square ft).

2.2.3 Impacts

The project would create access to the previously inaccessible west bank of the South Fork of the Eel River (see Figure 1.3). However, the project would not include any turnoffs, exits, or other places for traffic to either stop or exit the highway onto the west bank. The project would pass through and adjacent to parcels on the western peninsula, but would not create the necessary conditions for the development of these parcels, specifically, access to the highway.

Furthermore, as discussed in section 2.1 (Land Use), the Mendocino County General Plan identifies lands within the project limits on the western bank of the river as Forest Lands, and currently does not identify any plans to convert this land to residential or other uses.

If Alternative 2 (White Alignment) or Alternative 3 (Blue Alignment) were chosen as the build alternative, safer access (by creating an intersection to the new U.S. 101 alignment with the new access road to Campbell Brothers at Confusion Hill and adjacent properties) would be provided to the Rural Community District land located at the southern limits of the project. Growth would not be anticipated within the Rural Community District because of the following reasons:

- The access road to a potential subdivision location is steep, narrow, gravely, lined with large old growth redwood trees, and road upgrades would be extremely expensive and difficult to complete.
- The land where a potential subdivision could occur is steep, and would be expensive and difficult to develop.
- The massive landslide affecting U.S. 101 reliability and stability, thus creating the need for the highway realignment project, would also affect any potential subdivision location.
- The general plan does not identify these lands as planned for land use conversion or development.

Lastly, the project is located in a rural area. The closest large employment and residential centers are over an hour to the north (Eureka) and to the south (Willits). The project would not be capacity-increasing, therefore would not improve travel-times for commuters. Since travel-times would not be improved and there are no nearby employment and residential centers, growth would be unlikely for the project vicinity.

2.2.4 Avoidance, Minimization, and Mitigation Measures

Growth inducement would be avoided by restricting access to the west side of the South Fork of the Eel River. Minimization and mitigation measures would not be anticipated.

2.2.5 Cumulative Impacts

Based on the restricted access to the west side of the South Fork of the Eel River and the fact that the project would not be capacity-increasing, cumulative impacts associated with growth inducement would not be anticipated.

2.3 Timberlands

This section evaluates the potential for the project to affect timberlands.

2.3.1 Regulatory Setting

Impacts to timberland are analyzed pursuant to the California Timberland Productivity Act of 1982 (Government Code Sections 51100 et seq.), which was enacted to preserve forest resources. Similar to the Williamson Act, this program gives landowners tax incentives to keep their land in timber production. Contracts involving Timber Production Zones are on 10-year cycles. Although state highways are exempt from provisions of the Act, the California Secretary of Resources and the local governing body are notified in writing in the event that new or additional right-of-way from Timber Production Zones would be required for a transportation project.

2.3.2 Affected Environment

The project area is surrounded by Timber Production Zones land; all of the land west of the Eel River is Timber Production Zone land. All of the proposed build alternatives would require the use of some Timber Production Zones land.

2.3.3 Impacts

All build alternatives have similar alignments on the peninsula on the western bank of the river (Figure 1.3), with timberland impacts occurring only in this location. The project would require between 20 to 24 hectares (50 and 60 acres) of Parcel Number 053-250-09 (see section 2.1.3, Land Use Impacts).

2.3.4 Avoidance, Minimization, and Mitigation Measures

During the design phase several alignments were analyzed for their potential to impact timberlands. Alternatives for further study were chosen based on avoiding and minimizing timberland impacts. Access for landowners would be maintained for all timberland parcels. Given highway projects are exempt from timberland land use conversions (see section 2.3.1, Regulatory Setting), further mitigation measures would not be proposed.

2.3.5 Cumulative Impacts

Due to avoidance and minimization measures, cumulative impacts on timberlands would not be anticipated.

2.3.6 Coordination

A letter was sent to the California Secretary of Resources and the Mendocino Council of Governments on April 1, 2005 notifying them of the project's plan to convert between 20 to 24 hectares (50 and 60 acres) of timberlands.

2.4 Community Resources

This section evaluates the potential for the project to affect community character and cohesion, to cause residential or business relocations, or to have environmental justice impacts.

2.4.1 Community Character and Cohesion

2.4.1.1 Regulatory Setting

The National Environmental Policy Act of 1969 as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 U.S.C. 4331(b)(2)]. The Federal Highway Administration in its implementation of the National Environmental Policy Act [23 U.S.C. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion and the availability of public facilities and services.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then the social or economic change may be considered in determining whether the physical change is significant. Since this project would result in a physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

2.4.1.2 Affected Environment

A Community Impact Report was prepared in November, 2004. There are a few small communities within a 16 km (10 mile) radius of the project. Leggett and Piercy are the nearest towns along U.S. 101. The three tourist-serving businesses in the project's immediate vicinity are a business community of sorts; each business has an interest in ensuring the well-being of the other two, since together they form a tourist destination. In terms of residents, there are twelve year-round residents of Redwoods River Resort, six at Campbell Brothers Confusion Hill, and eight at the World Famous Tree House.

Community Attitudes Toward the Project

Comments received at public meetings and in response to the Notice of Preparation indicate that most residents of this area support the project, with preferences for each of the alternatives varying according to individuals' interests. Residents of Leggett, Laytonville, Piercy, Garberville, and other areas not directly affected by the project are generally enthusiastic supporters of the proposed project. Recurring slides at Confusion Hill create uncertainty for both

the business community and residents of the area. One resident of Redwoods River Resort stated that she had been "caught" on the north side of slide and spent two nights there as a result of a trip to Garberville to buy groceries. Once a slide occurs, it is uncertain when it will be cleared, making it difficult to justify the ten hour trip (402 km detour [250 mile]) through Eureka, Redding, Williams, Clearlake, and Willits to return to the south side of the slide.

Businesses and Towns in the Project Vicintiy

Leggett

Leggett is the nearest town to the project, located 12.9 km (8 miles) south. The business community is small, and consists of:

- Garske's Leggett Market – a small grocery store that also offers video rental
- Patriot Self Serve Gas
- Janice's Redwood Diner (vacant)
- California Clayworks – art gallery & gifts
- Mini-mart (vacant)
- Redwood Mercantile Store – convenience store with video rental
- Chandelier Tree – drive-thru redwood tree and gift shop
- Peg House – convenience store, deli, and gas station, and tourist information

World Famous Tree House

The World Famous Tree House (Figure 2.3) is a tourist attraction located at the southern end of the project. The business, which is located in the hollow trunk of a redwood tree, was featured in Ripley's Believe It or Not, and has been in operation for over forty years.

Redwoods River Resort

Redwoods River Resort (Figure 2.4) is a tourist attraction located at the southern end of the project. The 8.5 hectare (21 acre) resort is located in a forest setting, with many old growth redwoods, madrones and tan oaks. The resort has 50 camping sites, a grocery store, eight guest rooms, seven cabins, and a private access trail to both a beach and the South Fork of the Eel River.

Confusion Hill

Campbell Brothers at Confusion Hill (Figure 2.5) is a tourist attraction located at the southern end of the project. The attraction has been operating since 1949, and includes a gift shop, the World Famous Gravity House, the Redwood Shoehouse, the Worlds Largest Free Standing Redwood Chainsaw Carving and the unique Miniature Mountain Train Ride.

Parks and Recreation

Two river access locations have the potential to be affected by the project, and are described below:

Snake Pit

Snake pit is a sandy river beach (with a flat dirt lot above) located at the northern limits of the project, and is used primarily by local residents for parking and river access. The beach is accessed from State Route 271 just north of Red Mountain Creek.

Redwoods River Resort

Visitors and residences of the Redwoods River Resort often access the South Fork of the Eel River by using a road located adjacent to the resorts property (access road owned by Blackwell Coombs Tree Farm). The Redwoods River Resort visitors and residences also access the river by a foot trail located on the resorts' property.

Population

The project limits is located in Block Group 2 in Census Tract 102 (Figure 2.2) This block group's 1990 population was 680, increasing to 748 in 2000 (approximate 10 percent increase). Countywide, the population increased by approximately nine percent in this period.

Demographics

Race and Ethnicity

Within the census tract, 85 percent of residents were white at the time of the 2000 Census. Six percent were American Indians or Alaskan Natives, three percent were Asian, and six percent idenfitied themselves as members of more than one race. Five percent of residents also identified themselves as being of Hispanic origin.

Age

The project area's residential age distribution is similar to that of California as a whole. Fifty-three percent of both the project area residents and California residents were between the ages of 21 and 60 in the year 2000. The median age of project area residents was 33.5, compared to 33.3 statewide.

The project area has fewer retirees than the rest of Mendocino County, as a proportion of total population: eleven percent of project area households drew retirement income in 2000, compared to 18 percent of households countywide. Statewide, 15 percent of households drew retirement income.

Figure 2.2 Census Tracts Block Groups (BG)

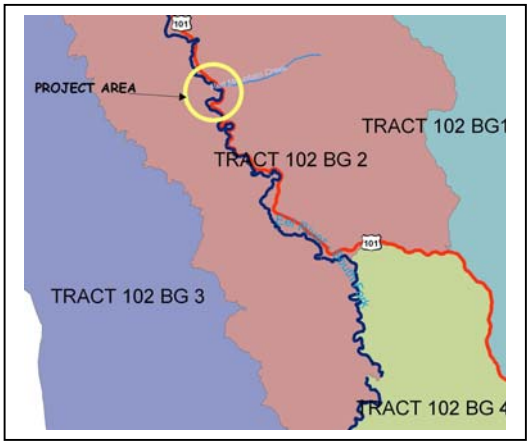


Figure 2.3 World Famous Tree House

Figure 2.4 Confusion Hill Attraction

Figure 2.5 Redwoods River Resort

Household Composition

According to the 2000 Census, Households made up of two or more members not related by birth, marriage, or adoption (identified by the Route Census as "nonfamily households") are more common in the project area than in Mendocino County as a whole. While 34 percent of the County's households were nonfamily households in 2000, this number was 56 percent in the project area. Statewide, less than 30 percent of households are "nonfamily" households.

The proportion of households in the project area headed by a single woman was identical to the county rate: 22 percent. This is higher than the statewide proportion of 19.5 percent.

Housing

According to the 2000 Census, a quarter of all housing in the project area is vacant—primarily because of the popularity of seasonal or part-time recreational housing (summer camps) in this area. Home ownership rates locally are comparable to those for the state and county—about 60 percent of residents own their own home, and 40 percent of residents rent their homes.
Most of the housing in Census Tract 102, Block Group 2 is single-family detached housing; this type makes up 87 percent of housing, compared to 70 percent in the rest of the county, and 56 percent in California as a whole. While most of the housing immediately adjacent to the proposed project consists of mobile homes, within the context of this Block Group mobile homes make up very little of the housing stock: only six percent, compared to 13 percent countywide.

The median year of construction for housing units in the project area was 1958 at the time of the 2000 Census. Countywide, the median year of home construction was 1972. Statewide it was 1970.

Housing values were much lower in the project area at the time of the 2000 Census than in the rest of the County or State. Based on residents' estimates, the median home value in the project area was $104,000. Countywide, the median home value was $165,000, and statewide it was nearly $200,000.

Income and Poverty

According to the 2000 Census, income levels are lower and poverty rates are higher in the project area than in the state or county. Median household income in the project area was $22,000 at the time of the 2000 Census, compared to $36,000 in the County and $48,000 statewide. Per capita income in the project area was $13,000, compared to $19,000 in the County and $23,000 statewide.

The proportion of residents living below poverty was nearly 30 percent in the year 2000, nearly twice the countywide poverty rate and more than twice the statewide poverty rate.

2.4.1.3 Impacts

Community Character and Cohesion

Alternative 1 (Black Alignment)

Alternative 1 would not remove or displace any community; therefore, no impacts are anticipated.

Alternative 2 (White Alignment)

Alternative 2 would not remove or displace any community; therefore, no impacts are anticipated.

Alternative 3 (Blue Alignment)

Alternative 3 (Blue Alignment) would result in the loss of the Redwoods River Resort, and 4 residences. By closing the Redwoods River Resort, this alternative would affect a small community of about a dozen permanent residents/employees living on this site. One resident reports living at the resort for over 25 years, and another for 20 years.

Alternative 7 (No-Build Alternative)

Under the No Build Alternative, access along U.S. 101 would remain contingent upon the weather, and on the ability of the State's Maintenance crews to remove slide debris along the road. U.S. 101 is critical to Leggett's residents, since it provides access to important services in Garberville, such as emergency medical facilities and schools. Similarly, elementary school

students living just north of the slide area need access through the Confusion Hill area to reach schools in Leggett. The build alternatives would ensure that access is available year round.

Tourism and Timber

Route closures due to slides could affect the export of lumber from Humboldt County and the import of tourists to Humboldt County. Without reliable transportation, exporting lumber could become more expensive. Similarly, while the U.S. 101 corridor has a unique attraction in the form of the Avenue of the Giants, vacationers could turn to more accessible attractions elswhere rather than take a lengthy detour. The Eureka Chamber of Commerce reports that during slides, tourist business falls off.

Construction Impacts

River Access

During project construction, construction crews would use the road adjacent to the Redwoods River Resort for access to the river. Visitors and residents of the resort would be required to use the foot trail located on the resorts property. River use and access (e.g., swimming, kayaking, etc.) through the bridge construction zone would not be restricted. During the bridge construction phase of the project, netting would be placed around structures and equipment (where necessary) to prevent tools or materials from falling into the river or on river users. All means possible would be taken to protect river users from accidential, construction-related injury.

2.4.1.4 Avoidance, Minimization, and Mitigation Measures

In order to avoid and minimize impacts, Alternative 2 (White Alignment) would be the preferred alternative. This alternative avoids removing businesses and residences, provides easier and safer access to businesses and residences, and does not restrict or alter permanent access to parcel or river locations.

Potential safety concerns and river access conflicts for residents and visitors at Redwoods River Resort would be avoided by keeping the river access road located adjacent to the resorts property closed (river access road owned by Blackwell Coombs Tree Farm). The foot path located on the Redwoods River Resort property would not be impacted, allowing for river access for residents and visitors.

2.4.1.5 Cumulative Impacts

Due to avoidance and minimization measures, cumulative impacts on community character and cohesion would not be anticipated.

2.4.1.6 Benefits for Community Character and Cohesion

Alternative 1 (Black Alignment)
Alternative 1 would not remove or displace any community, therefore no impacts are anticipated.

Alternative 2 (White Alignment)
Alternative 2 would not remove or displace any community, therefore no impacts are anticipated.

Alternatives 2 (White Alignment)
Within the project limits, the Campbells Brothers at Confusion Hill and the Redwoods River Resort businesses are located adjacent to U.S. 101. This segment of U.S. 101 is curvilinear, and sight distance is impaired by hills and trees. The winding alignment of U.S. 101 through the project limits makes entering and exiting the Campbell Brothers at Confusion Hill and Redwoods River Resort businesses difficult.

Alternatives 1 and 2 would improve traffic safety for these businesses by creating a new intersection and a left-turn lane for both north and south bound travel, providing improved access to and from these businesses. Signs would be installed (for both north and south bound motorists) identifying the location of historic landmarks, including the Campbell Brothers at Confusion Hill business. Since the Redwoods River Resort would still be located immediately adjacent to U.S. 101, signage for this business would not be required. A final determination for sign design and wordage would occur after construction. Lastly, bypassing the Confusion Hill landslide would provide more reliable access to both businesses.

All Build Alternatives
Construction of the project would have a positive impact on all of the businesses located north and south of the slide area, particularly those that rely on daily shipments by truck to or from the San Francisco Bay Area.

2.4.2 Relocations

2.4.2.1 Regulatory Setting
The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects

designed for the benefit of the public as a whole. Please see Appendix E for a description of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S.C. 2000d, et seq.). Please see Chapter 5 for a copy of the Department's Title VI Policy Statement.

2.4.2.2 Affected Environment

A Community Impact Assessment was prepared in November, 2004. The proposed project is located in the Eel River Valley in northern Mendocino County about 11.3 km (7 miles) south of the Humboldt County line. U.S. 101 is the predominant man-made feature in this area, providing access for tourists and commodities through this area. Within the project limits, several residences and three businesses exist. The World Famous Tree House, the Campbell's Brothers at Confusion Hill, and the Redwoods River Resort are located at the southern limits of the project.

2.4.2.3 Impacts

Alternative 1 (Black Alignment)
Alternative 1 would not require the removal of any structures; therefore, no impacts are anticipated.

Alternative 2 (White Alignment)
Alternative 2 would not require the removal of any structures; therefore, no impacts are anticipated.

Alternative 3 (Blue Alignment)
The Blue Alignment would require the acquisition of the Redwoods River Resort and the displacement of its estimated 12 year-round residents. As mobile home residents, these households would likely require financial assistance in order to find comparable decent, safe, and sanitary housing elsewhere in this region.

While a small business within the context of Mendocino County's economy, Redwoods River Resort is both a large employer and a major source of revenue locally. At capacity, this facility can hold over 150 people, most of whom are dependent on local grocers for their food and supplies. The loss of this business could potentially result in some loss of revenue to other businesses, particularly those in nearby Leggett.

2.4.2.4 Avoidance, Minimization, and Mitigation Measures

In the event Alternative 3 (Blue Alignment) is chosen for construction, relocation assistance payments and counseling would be provided to persons and businesses in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act, as Amended, to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents (see Appendix E). All eligible displacees will be entitled to moving expenses. All benefits and services will be provided equitably to all residential and business relocatees without regard to race, color, religion, age, national origins and disability as specified under Title VI of the Civil Rights Act of 1964 (see Appendix D).

2.4.2.5 Cumulative Impacts

Due to avoidance and minimization measures, cumulative impacts on businesses and residences would not be anticipated.

2.4.3 Environmental Justice

Environmental Justice ensures that low income and minority populations are considered, and not disproportionately affected as a result of the proposed project.

2.4.3.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2003 the poverty line is $18,660 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Chapter 9 of this document.

2.4.3.2 Affected Environment

A Community Impact Analysis, including the projects potential to have Environmental Justice effects, was completed November 2004. U.S. Census data for Census Tract 120 and Census Block Groups 1, 2, 3, and 4 was analyzed to identify any low income or minority populations

within the project limits.

Minority Populations
While minority populations were identified in Census Tract 120, no minority populations have been identified in the project area.

Low-Income Populations
According to Census data the poverty rate in the project area is almost twice the countywide rate, suggesting a low-income population. While no numbers are available specific to Redwoods River Resort's tenants, these residents can be assumed to be low-income, as renters of manufactured homes. Manufactured homes (mobile homes) and Recreational Vehicles are generally considered to be affordable housing.

2.4.3.3 Impacts

Alternative 1 (Black Alignment)
Alternative 1 would not require the removal of any structures; therefore, no impacts are anticipated.
Alternative 2 (White Alignment)
Alternative 2 would not require the removal of any structures; therefore, no impacts are anticipated.

Alternative 3 (Blue Alternative)
Alternative 3 would result in the displacement of the low-income tenants of Redwoods River Resort. Since Alternative 3 would not favor removing low-income residents over individuals of higher income brackets, a disproportionate impact would not occur.

2.4.3.4 Avoidance, Minimization, and Mitigation Measures
Since the project would not have a disproportionate impact on low-income or minority populations with respect to displacement, avoidance, minimization, and mitigation measures would not be proposed.

2.4.3.5 Cumulative Impacts
Since the project would not have a disproportionate impact on low-income or minority populations with respect to displacement, cumulative impacts would not be anticipated.

2.5 Utilities and Emergency Services

This section evaluates the potential for the project to effect utilities and emergency services.

2.5.1 Affected Environment

Utilities

Two utilities exist within the project limits: Verizon Telephone and Pacific Gas and Electric power lines. These utilities share the same pole line. Utility poles exist adjacent to Route 271 at the northern limits of the project limits, and poles exist adjacent to U.S. 101 along the entire project limits. The poles along Route 271 would need to be relocated prior to the construction of the Snake Pit disposal site. The poles adjacent to the existing U.S. 101 would need to be relocated before the removal of exisitng U.S. 101.

Emergency Services

California Department of Forestry and Fire Prevention

The California Department of Forestry and Fire Prevention (CDF) has fire stations in Leggett, Laytonville, Weott (about 64.4 km [40 miles] north of Confusion Hill), Covelo (75.6 km [47 miles] east of Leggett), and Willits (about an hour south of Confusion Hill).

Local Fire Departments

Leggett and Piercy both have small volunteer fire departments. The Leggett Valley Fire Department has about ten members, a tank truck, and a rescue vehicle. The Piercy Volunteer Fire Department responds to emergency calls in the project area.

Access to the South Fork of the Eel River and other water sources is important to all fire fighting efforts in this area, because there are no fire hydrants or municipal water services: fire fighting teams fill their tank trucks at the river. One such access point is located adjacent to the Redwoods River Resort. An unpaved private road leads to the river from U.S. 101.

Emergency Medical Services

The nearest emergency room in the area is at Jerold Phelps Community Hospital in Garberville, about 21 km (13 miles) north of the project area. In the case of extreme emergencies, the local air ambulance helicopter service is available to fly patients to the emergency room in Redding.

Law Enforcement

U.S. 101 is patrolled by the California Highway Patrol, which has a station in Garberville. The project area is also within the Mendocino County Sheriff's jurisdiction. There are Sheriff's offices in Laytonville and Covelo.

Fire Response

Public comments on the project have expressed concern over the fact that the build alternatives would provide access to the western side of the South Fork of the Eel River; an area that is currently inaccessible. Providing access could result in motorists starting forest fires on the west side of the river either accidentally or maliciously. A 6-7.6 meter (20-25 ft.) wide rock fall area adjacent to U.S. 101 on the west side of the river would be constructed, but not be identified as a public access or turnout area.

2.5.2 Impacts

Impacts would not be anticipated with any of the build alternatives.

Alternative 7 (No-Build Alternative)

Emergency Medical Services

Under the No-Build Alternative, during future landslide events residents of Leggett and other points south are shut off from land transport to the nearest available emergency medical facilities, located north in Garberville. More distant alternatives exist for residents, including the emergency room in Willits. In addition, future slides may prevent emergency vehicle access to northern or southern destinations.

Fire Response: California Department of Forestry Helicopters

Project construction may require the use of helicopters to bring materials to the western bank of the South Fork of the Eel River, and to remove netting on the hillside adjacent to existing U.S. 101.

Beneficial Effects

All build alternatives would provide residents living south of the slide area with reliable access to the emergency medical facilities north in Garberville.

2.5.3 Avoidance, Minimization, and Mitigation Measures

To prevent potential conflicts, the California Department of Forestry would be notified of the dates and times when construction crews are using helicopters. Furthermore, provisions would be

included in the contract requiring the contractor to allow access to emergency vehicles during construction.

In order to facilitate the relocation of utilities, conduit/utility openings are included in the design of the north and south bridges.

2.5.4 Cumulative Impacts

Cumulative impacts on utilities and emergency services would not be anticipated.

2.6 Visual Resources

This section evaluates the potential for the project to affect visual resources.

2.6.1 Regulatory Setting

The National Environmental Policy Act of 1969 as amended establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings [42 U.S.C. 4331(b)(2)]. To further emphasize this point, the Federal Highway Administration in its implementation of the National Environmental Policy Act [23 U.S.C. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, the California Environmental Quality Act establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic*, natural, scenic and historic environmental qualities." [CA Public Resources Code Section 21001(b)]

2.6.2 Affected Environment

A Visual Impact Assessment was completed in February, 2005. The results of this assessment are summarized below.

Site and Vicinity

Within the project limits, U.S. 101 crosses a west-facing slope several hundred feet above the South Fork of the Eel River. The project area is near the transition line between the California mixed evergreen forest and redwood forest. To the east, the dominant vegetation coverage of the mixed evergreen forest includes several oak species, madrone, bigleaf maple, Douglas fir, manzanita, ceanothus, California laurel and western dogwood. To the west, the cooler foggy coastal influences support an overstory of redwood, Douglas fir, grand fir, western hemlock and

tanoak. The understory includes Pacific wax myrtle, salal, sword fern, redwood sorrel and evergreen huckleberry.

The Visual Environment

The traveling public experiences unfolding vistas of the South Fork of the Eel River, small groves of towering old growth redwoods, thick stands of dark green conifer forests and exposed sandstone outcroppings. Small towns and tourist facilities are common along the Highway 101 corridor. The project area is located between an old growth redwood grove to the south and patchy redwood forests with exposed grasslands to the north. Views to the northeast are restricted due to the steep topography. The cut slope adjacent to the northbound lane is forested along the edges and shows visual evidence of rockslide events. The rockslide areas are currently managed by berms and netting. To the northwest and southwest, the southern slopes of the Eel River Valley are visible in the middle ground and background. These slopes are mostly covered with redwood and conifer forest with small patches of rock outcroppings and exposed slopes created by recent landslide activities.

Scenic Resources

This section of U.S. 101 is north of Smithe Redwoods State Reserve. Smithe Reserve along with several other reserves common along U.S. 101 protects some of the remaining stands of old growth redwood trees in the North Coast region. Between the town of Leggett and Prairie Creek Redwoods State Park in Del Norte, U.S. 101 has been identified as 'Eligible' for scenic highway status on the California Scenic Highway System. The project area is located along a section of the South Fork Eel River, which has been designated by federal law as Wild and Scenic under the recreational classification.

Exposed rock

The local geology within the project area includes a combination of solid rock formations (sandstone) in some locations with unstable rock/soil slopes. Although vegetation is common on the unstable rock soil slopes, there is minimal plant growth on the rock formations. Natural rock formations are commonly viewed as a scenic resource within a landscape architectural context due to their uneven texture and interesting coloration when compared to the normal vegetative cover commonly viewed along the roadside.

Disposal Sites

Five optional disposal sites have been identified (Schendel, Wayside Gulch, Bear Pen 1& 2, and Snake Pit, see Figure 1.4). With the exception of Wayside Gulch, each location is currently composed of either bare or weeded surface. Wayside Gulch consists of mixed evergreen forest.

2.6.3 Impacts

Build Alternatives

For all build alternatives, the project would require the removal of trees, construction of a retaining wall on the peninsula, and a cut through the peninsula on the west bank of the river (Figure 1.3, Section 1.3).

Three build alternatives have been proposed for this project. The primary difference between the alternatives is in the southern third of the realignment.

Start of Project to South Bridge

Alternative 1 (Black Alignment)

Alternative 1 would begin adjacent to the Campbell Brothers at Confusion Hill business then continue over the south bridge where it would tie into the peninsula alignment (see Figure 1.4, Section 1.3). This alternative would require the removal of 18 to 20 large redwood trees; however it would impact the least amount of vegetation adjacent to the south bridge compared to the other alternatives.

The traveling public would continue to experience a redwood forest environment south of the bridge although there may not be as many large trees immediately adjacent to the roadway. When travelers enter the bridge from the north or south, they would experience sweeping views of the South Fork of the Eel River and surrounding mountains to the east and west. These views would be an improvement compared to existing conditions. Currently there are sweeping views to the west and a large, steep and unvegetated cut slope to the east. The south bridge and new alignment would be visible from the Confusion Hill parking lot and from the South Fork of the Eel River bar. The south bridge and new alignment would not be visible from Redwood River Resort due to topography and existing vegetation.

Alternative 2 (White Alternative)

Alternative 2 begins just south of the Redwood River Resort entrance and avoids the Redwood River Resort entirely (see Figure 1.5, Section 1.3). The road then curves slightly to the right as it approaches the south bridge. Four to five large redwood trees would be removed in this location.

This alternative then crosses the South Fork of the Eel River on the south bridge where it ties into the peninsula alignment.

The traveling public would continue to experience a redwood forest environment south of the bridge although there may not be as many large trees immediately adjacent to the roadway. This alternative has the lowest visual quality compared to the other alternatives since it would be adjacent to the Redwoods River Resort, with buildings being visible from the new roadway. Currently views of the resort are restricted by existing vegetation. When motorists approach the bridge from the north or south, they would be provided sweeping views of the South Fork of the Eel River and surrounding mountains to the east and west. These views would be an improvement compared to existing conditions. Currently there are sweeping views to the west and a large, steep and unvegetated cut slope to the east.

From the Campbell Brothers at Confusion Hill business parking lot and facility, the new alignment and south bridge would be visible. The business would no longer be adjacent to the highway; however, there would be a new intersection providing access directly across from the Redwood River Resort entrance. The bridge would be visible from the South Fork of the Eel River bar. The south bridge and new alignment would not be visible from Redwood River Resort due to topography and existing vegetation.

Alternative 3 (Blue Alignment)

Alternative 3 would extend the farthest to the south. From the southern limits of work, the new alignment would diverge from the existing alignment north of the World Famous Tree House business and go through a grove of redwoods (see Figure 1.6, Section 1.3). Four to five large redwood trees would be removed. Alternative 3 would then cross the Redwoods River Resort and impact several of the resort buildings including the lodge and store. This alternative would then remove a stand of smaller trees, including oaks, redwoods and Douglas fir located between the store and the top of the river bluff. It crosses the South Fork of the Eel River on the western most crossing when compared to the other 2 alternatives where it would tie into the peninsula alignment.

The traveling public would continue to experience a redwood forest environment south of the bridge although there may not be as many large trees immediately adjacent to the roadway. When travelers approach the bridge from the north or south, they would be provided with sweeping views of the South Fork of the Eel River and surrounding mountains to the east and west. These views would be an improvement compared to existing conditions. Currently there are sweeping views to the west and a large, steep and unvegetated cut slope to the east.

The south bridge and new alignment would not be visible from the Confusion Hill parking lot due to existing vegetation. Redwoods River Resort would experience potentially adverse visual impacts since the road would bisect the business. The bridge would be partially visible from the resort although existing vegetation would screen views of the structure. The south bridge would be the most visible for users of the South Fork of the Eel River compared to the other two alternatives.

Peninsula

All build alternatives follow the same alignment on the peninsula, with all requiring cut and fill slopes, one retaining wall, and vegetation removal. Vegetation coverage on the peninsula contains a mixture of redwoods on the shaded slopes and Douglas fir and oak woodlands on the more exposed slopes.

Due to the height of the cut slopes and existing vegetation below the proposed retaining wall, expansive views would be limited. The dominant feature visible to motorists while traveling on the northern and southern thirds of the peninsula would be rock outcrops. Within the middle third, viewers would see a large cut slope to the west and a tree canopy to the east. The north and south bridge roadway and railings would be visible as the viewers approach the bridges. Views of the surrounding landscape would also open up while approaching and crossing the two bridges.

North Bridge to the End of the Project

All build alternatives follow the same alignment in the northern portion of the project area. From the peninsula, the highway crosses the South Fork of the Eel River on the north bridge then ties into the existing U.S. 101. In this location, the roadway would go through a cut, with most of the removed habitat being oak woodlands and scrublands.

Views in this area would be obstructed adjacent to the north bridge due to the cut slope; however, southbound travelers would view the north bridge as they approach the structure. Views are expansive north of the cut slope in this location.

North and South Bridge

All build alternatives would add new structures to the landscape. The south bridge would be the highest and longest of the two structures. The structures would be thin and narrow compared to other nearby bridges on U.S. 101, with the south structure built on vertical legs and the north structure on slant legs. This design reduces the potential impacts to views of the surrounding landscape.

Figures 2.6 through 2.9 show the existing environment as viewed from existing U.S. 101, and the proposed view with the new bridge structures.

Alternative 7 (No-Build Alternative)

The impacts associated with the no build include continual management of the slide with construction equipment, berms, and hillslide netting. These manmade features create a "construction type" of environment, and could take away from the traveling public's sense of nature (Figure 2.10).

Temporary Impacts

Access Roads

Construction of both the north and south bridge would require the construction of temporary roads to provide access to bridge piers and abutments not accessible from existing roads and highways (Figures 1.5, 1.6, and 1.7, Section 1.3).

There would be two access points to the north bridge. The first access point is from the south end of Route 271 that parallels U.S. 101. Route 271 is the original U.S. 101 alignment that terminates at a cul-de-sac near the northern abutment of the north bridge. Approximately 55 meters (180 ft.) of new access road would extend from the north end of Route 271 to the north bridge abutment. The new access road would impact existing vegetation that consists of mixed evergreen woodlands. Access to the south abutment of the north bridge would be from the existing gravel road that extends 732 meters (2400 ft.) adjacent to the Redwood River Resort to a temporary low-water river crossing to the peninsula side of the river. From the temporary river crossing, access would continue across the peninsula approximately 914 meters (3000 ft.) to the south abutment of the north bridge. Impacts to existing vegetation would be minor since the contractor can use existing gravel roads extending from behind the Redwood River Resort to the South Fork of the Eel River and the gravel road network on the peninsula.

Access to the south end of the project area is from a private gravel road intersecting U.S.101 near the Redwoods River Resort.

Access to the peninsula would require a temporary low-water crossing. The access bridge would provide access to the north and south bridge piers and abutments located on the peninsula.

Bridge construction on the peninsula is expected to continue year round which would require temporary trestles at the north bridge during winter months when the river is experiencing high flows. The temporary trestles would provide access to the peninsula for equipment and bridge construction operations.

Temporary access roads and trestles would introduce new features, potentially resulting in reduced visual quality of the area.

Staging Areas

Construction would require staging areas for equipment and materials (see Figures 1.5, 1.6, and 1.7, Section 1.3). Passing vehicles would observe the storage of heavy equipment, dirt, and other materials required in the construction of the bridges, retaining walls and metal beam guardrails. Temporary erosion control measures such as straw bails and fabric used where materials are stored would also be visible from the roadway. During construction, local pullouts would not be available for public use, and signs would be used to direct vehicles through the construction site.

Temporary staging areas would introduce new features, potentially resulting in reduced visual quality of the area.

Disposal Sites

Given the Schendel, Bear Pen 1& 2, and Snake Pit sites are currently composed of weeds or bare earth, permanent visual impacts would not be anticipated with the deposition of material (see Figure 1.4). Wayside Gulch consists of mixed evergreen forest, with some small tree removal being required before disposal could occur. At this location, tree removal and deposited material would temporarily reduce the visual quality of the area.

Removal of Existing U.S. 101

Private citizens, local groups, and state and federal agencies have expressed concern regarding the removal of the existing U.S. 101. The strategy for the removal of the existing U.S. 101 was developed with input from the U.S. Fish and Wildlife Service and the National Oceanographic and Atmospheric Administration.

Studies indicate the removal of the existing U.S. 101 (which would occur after completion of the highway realignment project) would create a beneficial effect for the project area. Currently, the traveling public experiences continual management of the slide with construction equipment, berms and hillslide netting. The removal process would include removing all manmade

materials, including retaining walls, roadway, culverts, utilities, and hillside netting. The removal would also include using native soil and vegetation to recontour the existing topography, creating a natural appearance and recreating natural drainage patterns.

Figure 2.6 View of Existing Eel River: Northern Limits of Project

Figure 2.7 View of Eel River With Bridge: Northern Limits of Project

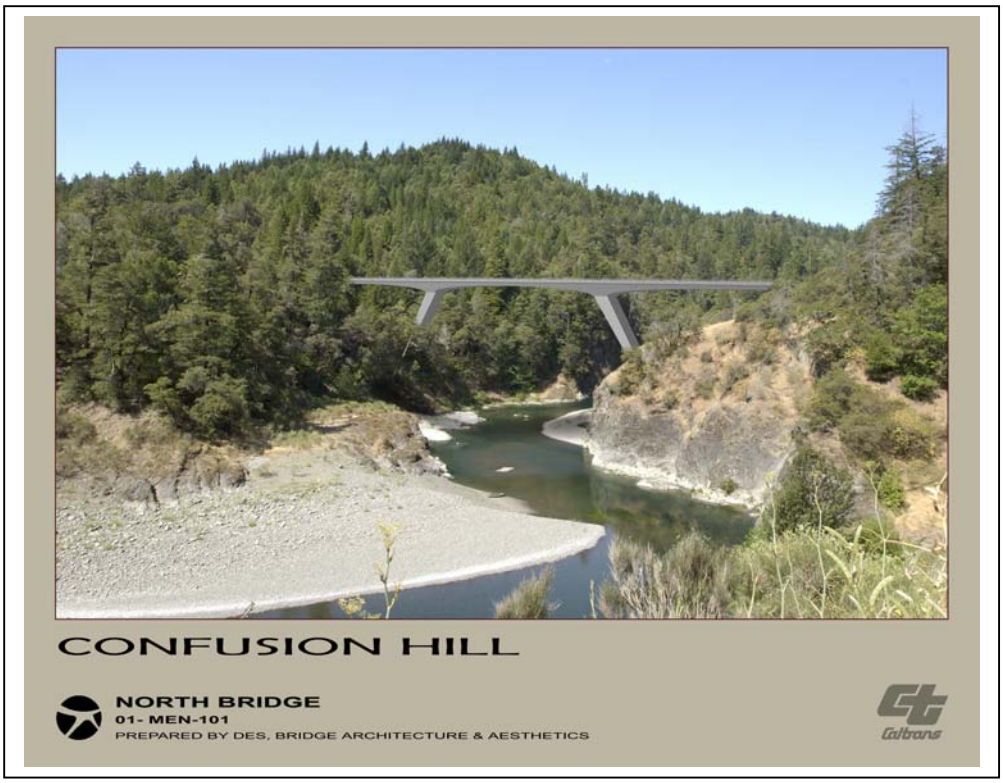


Figure 2.8 View of Existing Eel River: Southern Limits of Project

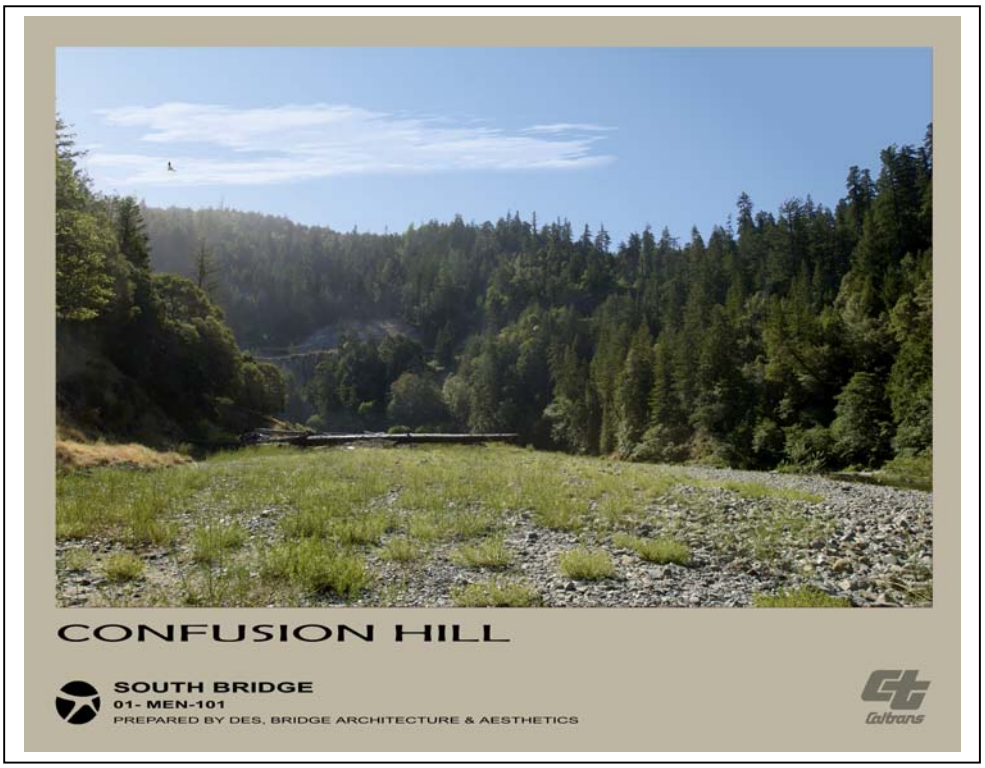


Figure 2.9 View of Eel River With Bridge: Southern Limits of Project

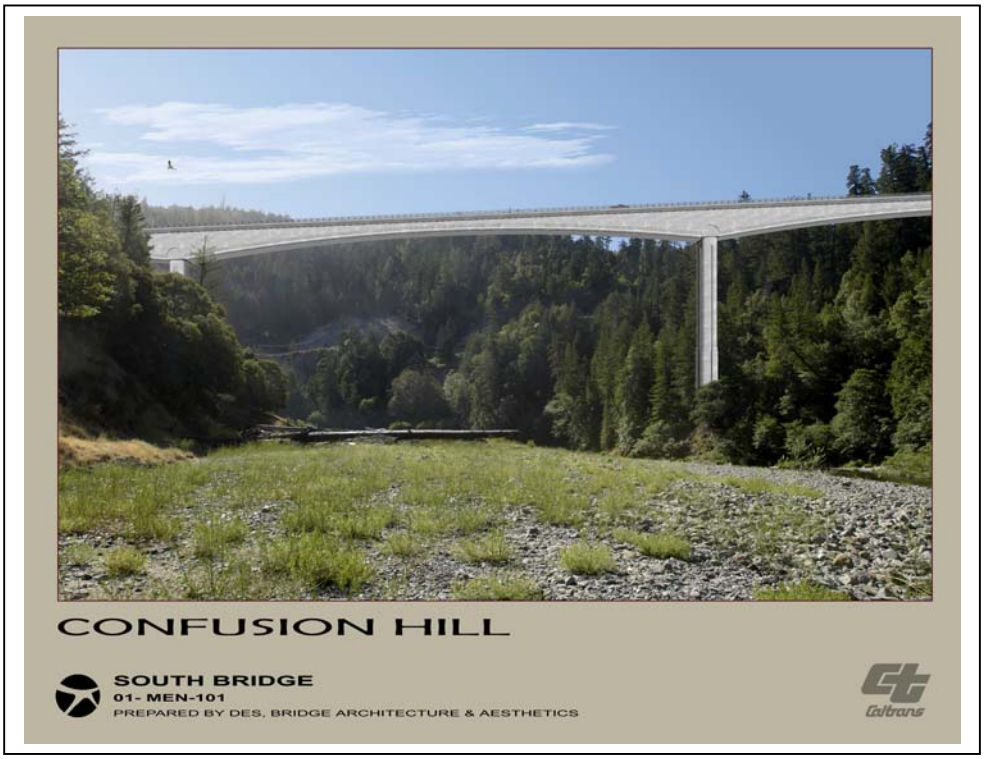


Figure 2.10 View of Man-made Features at Confusion Hill Slide

2.6.4 Avoidance, Minimization, and Mitigation Measures

For all build alternatives the following avoidance, minimization, and mitigation measures would be considered.

Natural Landscape

The following measures to reduce visual impacts would be considered:

- Contouring, benching, slope rounding and using contour variability of cut and fill slopes to blend with existing topography and provide for planting of native vegetation
- Minimizing removal of existing vegetation
- Preserving tree canopy adjacent to the proposed bridges
- Aesthetic treatment for the proposed southerly retaining wall to blend with the surrounding natural landscape
- Use of see through railing on the proposed bridge structures
- Considering opportunities for pullouts to allow travelers to park and view the South Fork Eel River and surrounding landscape
- Preserving rock outcroppings

Temporary Impacts

Temporary visual impacts are part of the general construction landscape and because they are short-lived they do not require mitigation. Measures would be taken after project completion to restore all disturbed locations to their original visual character.

Disposal Sites

For all used disposal sites, the material would be contoured to match the surrounding topography, and revegetation with native plants and shrubs would occur.

Permanent and Beneficial Impacts: Removal of Existing U.S. 101

The removal of the existing U.S. 101 (which would occur after completion of the realignment project) would create a beneficial effect for the project area. Currently, the traveling public experiences continual management of the slide with construction equipment, berms and hillslide netting. The removal process would include removing all manmade materials, including retaining walls, roadway, culverts, utilities, and hillside netting. The removal would also include using native soil and vegetation to recontour the existing topography, creating a natural appearance and recreating natural drainage patterns.

2.6.5 Cumulative Impacts

Bridges are common on U.S. 101 in northern Mendocino County. Due to the height of the proposed bridges, views of the surrounding landscape would be improved compared to the existing conditions. Furthermore, the bridges would provide a beneficial visual impact by bypassing the slide, which would no longer be a visual focal point.

Due to avoidance, minimization, and mitigation measures, cumulative impacts on visual resources would not be anticipated.

2.7 Cultural Resources

This section evaluates the potential for the project to effect cultural resources.

2.7.1 Regulatory Setting

"Cultural resources" as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places (NRHP). Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, in accordance with regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) among the Advisory Council, the Federal Highway Administration, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with the federal funding. The Programmatic Agreement takes the place of the Advisory Council's regulations, 36 CRF 800, streamlining the Section 106 process and delegating responsibilities to Caltrans.

Historic resources are considered under the California Environmental Quality Act, as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources (CRHR). PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet California Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the Californial Register or are registered or eligible for registration as California Historical Landmarks.

2.7.2 Affected Environment

A Historic Property Survey Report was completed in February 2005. Methods to determine the potential effects on cultural resources included field surveys, a record search at the California Historical Resource Information System's Northwest Information Center (Sonoma State University, Rohnert Park), and discussions with local Native American groups.
The project area contains five cultural resource sites (Figure 2.11—due to confidentiality, the archaeological sites are not included in the figure): one prehistoric archaeological site, one historic archaeological site (Rosewarne Homestead), and four historic architectural sites (Lilley's Grave, Confusion Hill, World Famous Tree House, Lilley Redwood Park).

Prehistoric Archaeological Site

The prehistoric archaeological site is a chert lithic scatter that includes stone tool flaking debris and two bifaces. For the purposes of this project, the site is assumed eligible to the National Register of Historic Places.

Rosewarne Homestead

The historic archaeological site, the Rosewarne Homestead, includes the remains of a collapsed redwood house, barn, early 20th century artifacts, and wood post fencing. For the purposes of this project, the site is assumed eligible to the National Register of Historic Places.

Lilley's Grave

Lilley's Grave consists of a marble, stone and concrete crypt in which Minnie Stoddard Lilley was interred in 1947. The crypt is surrounded by a circle of old growth redwood trees. The site was evaluated by qualified Caltrans staff as being ineligible for the National Register of Historic Places, but eligible for the California Register of Historic Places.

Campbell Brothers at Confusion Hill

Confusion Hill, established in 1949, includes 13 acres of heavily forested land, a Gift and Snack Shop, a 2.4 km (1.5 mile) 20 gauge railroad, and a "Gravity House." Caltrans staff evaluated the site and recommended it for inclusion in the National Register of Historic Places and the California Register of Historic Places, under National Register Criterion A, for its association with the themes of tourism, recreation, roadside theme parks, and rustic vernacular architecture along the Redwood Highway.

World Famous Tree House

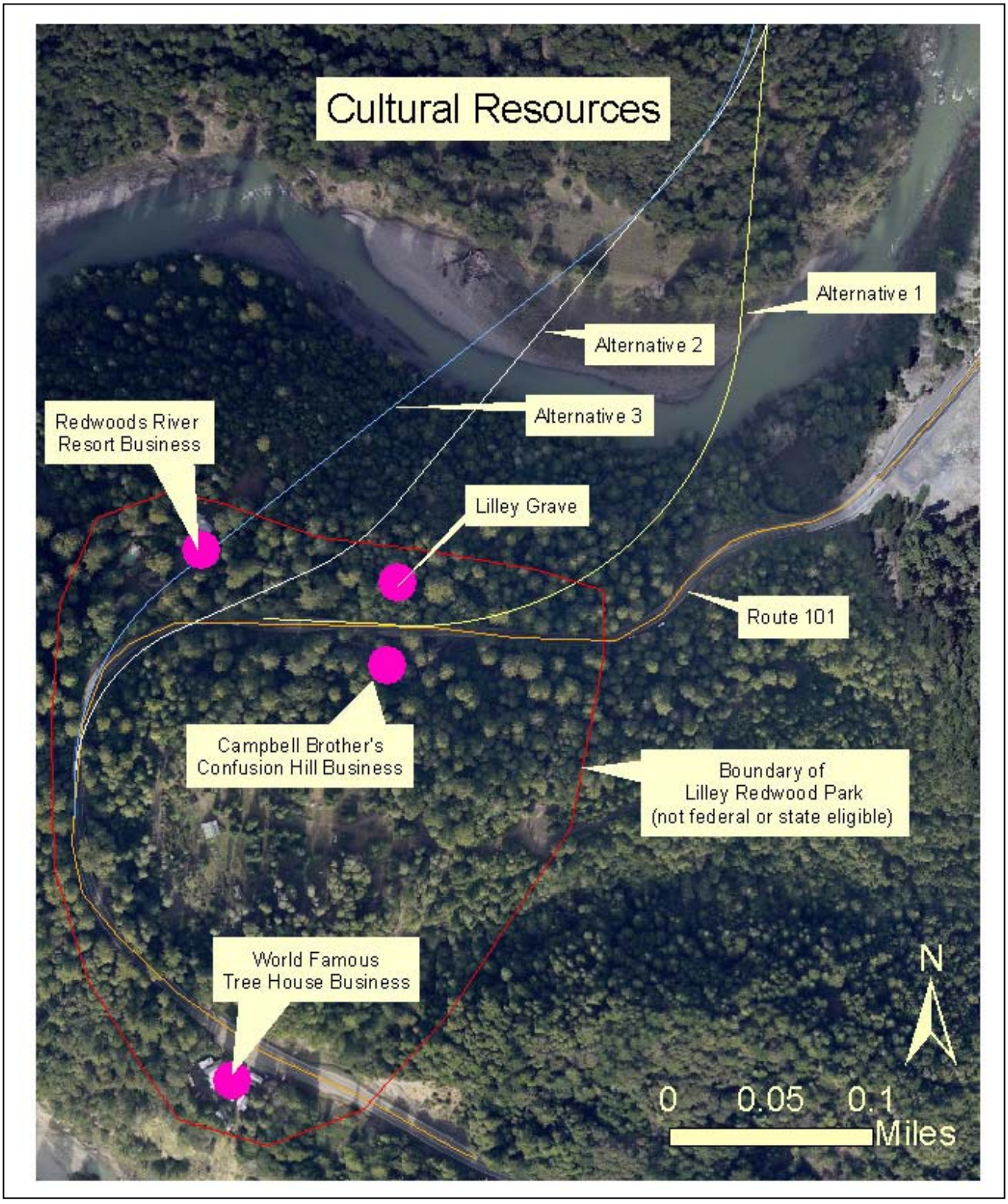
The Tree House is a stand of four old growth redwood trees that have grown together to form a single tree 76 meter (250 ft.) high and 30.8 meter (101 ft.) in circumference. A historic fire produced a hollow interior space, 8.2 meter (27 ft.) in diameter, and the tree began to be used as a structure in the 1920s. Staff found the site eligible for inclusion in the National Register of Historic Places and the California Register of Historic Places, under National Register Criterion A, for its association with the themes of tourism, recreation, roadside theme parks, and rustic vernacular architecture along the Redwood Highway.

Lilley Redwood Park

"Lilley Redwood Park" is a potential cultural resource "district" including the Campbell Brothers at Confusion Hill and World Famous Tree House businesses, and Lilley's Grave site. The district

was evaluated and found to be ineligible for inclusion in the National Register of Historic Places as well as the California Register of Historic Places.

Figure 2.11 Historic Resources



2.7.3 Impacts

Alternative 1 (Black Alignment)

Prehistoric Archaeological Site

Alternative 1 would bisect a prehistoric archaeological site, and cause direct, and likely adverse, impacts to the site. Under both federal and state statutes, a Phase II archaeological research design and excavation program would be required in order to determine the nature, aerial extent, integrity, and significance of the site. If the site were to be found significant, a full Phase III data recovery program would be recommended. If the site were not found significant, no further work would be required.

Lilley's Grave

Alternative 1 would remove one redwood tree greater than 1 meter (3-ft.) diameter at breast height from the grove surrounding Lilley's Grave. Under state statute, the tree is considered a contributing element to the significance of the grave and removal of the tree would be considered an adverse impact.

Alternative 2 (White Alignment)

Alternative 2 avoids all cultural resources.

Alternative 3 (Blue Alignment)

Rosewarne Homestead

The Blue Alignment would bisect the Rosewarne Homestead. Construction of the Alternative 3 would cause direct, and likely adverse, impacts to the site. Under both federal and state statutes, a Phase II archaeological research design and excavation program would be required in order to determine the nature, aerial extent, integrity, and significance of the site. If the site were to be found significant, a full Phase III data recovery program would be recommended. If the site were not found significant, no further work would be required.

2.7.4 Avoidance, Minimization, and Mitigation Measures

In order to avoid and minimize impacts on prehistoric and historic resources, Alternative 2 (White Alignment), which avoids all cultural resources, has been identified as the preferred alternative. In the event Alternative 2 is not chosen as the build alternative the following avoidance, minimization, and mitigation measures would be conducted.

Alternative 1 (Black Alignment)

An archaeological excavation would be conducted for the prehistoric archaeological site located near the black alignment. All recovered material would be removed, cataloged, and sent to the Cultural Resource Facility collections center at Sonoma State University for preservation.

Alternative 2 (White Alignment)

Alternative 2 avoids all cultural resources.

Alternative 3 (Blue Alignment)

Avoidance and minimization measures would include installation of Environmentally Sensitive Area fencing for all prehistoric and historic resources. The fencing would protect areas from encroachment and disturbance during construction. Furthermore, an in-depth study, including possible excavations, would be conducted.

All Build Alternatives

A Native American monitor would be present during ground-disturbing work in the vicinity of the prehistoric site.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. Pursuant to Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission who would then notify the "Most Likely Descendent." The person who discovered the remains would be required to contact a Caltrans environmental representative, so that Caltrans may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further, provisions of PRC 5097.98 are to be followed as applicable.

Likewise, federal provisions within 36 CFR 800.13 require appropriate steps be taken to minimize or mitigate any transportation impacts on a late archaeological discovery. All project work in the vicinity of the discovery area would cease immediately. The area would be secured and protected. A full assessment of the "find" and the level of its cultural significance would be

made. If the "find" involves prehistoric artifacts or human remains, communications with the appropriate consulting parties would be initiated.

2.7.5 Cumulative Impacts

Due to avoidance and minimization measures, cumulative impacts on cultural resources would not be anticipated.

2.7.6 The State Office of Historic Preservation

The State Office of Historic Preservation (SHPO) was consulted regarding this project's National Register of Historic Places eligibility. Pursuant to Stipulation VIII.C.5 (30-day response time) of a programmatic agreement between the Federal Highway Administration (FHWA) and SHPO, Caltrans may proceed to the next step of the process based on Caltrans' determination of National Register of Historic Places eligibility. The SHPO database file number for this project is FHWA050322C, and the SHPO log in date was March 22, 2005.

2.8 Water Quality and Storm Water Runoff

This section evaluates the potential for the project to affect water quality.

2.8.1 Regulatory Setting

The primary federal law regulating Water Quality is the Clean Water Act. Section 401 of the Act requires a water quality certification from the State Board or Regional Board when a project: 1) requires a federal license or permit (a Section 404 permit is the most common federal permit for Department projects), and 2) will result in a discharge to waters of the United States.

Section 402 of the Act establishes the National Pollutant Discharge Elimination System (NPDES) permit system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. To ensure compliance with Clean Water Act Section 402 the State Water Resources Control Board (SWRCB) has issued a NPDES Statewide Storm Water Permit to regulate storm water discharges from Department facilities. The permit regulates storm water discharges from the Department right-of-way both during and after construction, as well as from existing facilities and operations.

In addition, the State Water Resources Control Board has issued a construction general permit for most construction activities covering greater than 0.20 hectare (1/2 acre), that are part of a Common Plan of Development exceeding 2.02 hectare (5 acres) or that have the potential to significantly impair water quality. Some construction activities may require an individual construction permit. All Department projects that are subject to the construction general permit require a Storm Water Pollution Prevention Plan, while all other projects require a Water

Pollution Control Program. Subject to the Department's review and approval, the contractor prepares both the Storm Water Pollution Prevention Plan and the Water Pollution Control Program. The Water Pollution Control Program and Storm Water Pollution Prevention Plan identify construction activities that may cause pollutants in storm water and measures to control these pollutants.

The Regional Water Quality Control Board has adopted a Basin Plan for the North Coast Region including the Eel River system. This plan defines beneficial uses of local receiving waters, sets forth water quality objectives to protect and enhance these beneficial uses, and formulates water management programs that limit discharges to these receiving water bodies. The Regional Water Quality Control Board designated the following beneficial uses in the Basin Plan for the South Fork Eel River:

- Municipal and domestic water supply
- Agriculture (irrigation and stock watering)
- Groundwater recharge
- Contact and non-contact recreation
- Commercial and sport fishing
- Cold freshwater habitat
- Wildlife habitat
- Rare, threatened or endangered species
- Migration of aquatic organisms
- Spawning
- Reproduction and/or early development
- Aquaculture

Additional laws regulating water quality include the Porter-Cologne Water Quality Act , Safe Drinking Water Act and Pollution Prevention Act. State water quality laws are codified in the California Water Code.

2.8.2 Affected Environment

A Water Quality Study Report was completed in March 2005. The project area lies within northern Mendocino County, and is part of the California Coast Range Physiographic Province. Steep mountain ridges dissected by the South Fork of the Eel River characterize the project area. Slope percentages vary from less than one percent in the floodplain to extremely steep from the floodplain to the first river terrace, and then between almost flat and 50 percent on the upland where the new roadway would be constructed. The proposed project is not located within the Coastal Zone, nor could it affect resources within the Coastal Zone.

The project area has a warm temperate climate characterized by a distinctive seasonal precipitation regime. Summers are dry with little or no precipitation from June to September. Winters are cool and wet, with 1.4 meters (55 inches) of the 1.7 meters (68 inches) of total annual precipitation occurring between the months of November and March. Snowfall may occur in December or January, but the depth is minimal and rarely accumulates except at higher elevations.

Although the soils in the project area are mapped as deep and well drained, surface runoff is rapid and the hazard for water erosion is severe if the surface is left bare. The existing U.S. 101 roadway traverses a steep west-facing slope on the east side of the South Fork of the Eel River at Confusion Hill. The surface water resources for the project area include the South Fork of the Eel River, a tributary to the main stem Eel River. The South Fork of the Eel River watershed is approximately 1785 square km (689 square miles) in size, and the river runs for approximately 169 km (105 miles) before joining the main stem Eel River just south of Pepperwood, California. Red Mountain Creek enters the South Fork of the Eel River at the northern end of the project.

The South Fork of the Eel River is noted as having impaired water quality for sediment and temperature and is listed on the U.S. Environmental Protection Agency's Section 303(d) List of Water Quality Impaired Segments. Waters on the 303(d) list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology.

No water quality monitoring has been conducted in the South Fork of the Eel River within the vicinity of the proposed project by any of the water resources jurisdictional agencies. Stage heights have been recorded since 1963 at a gaging station maintained by the U.S. Geological Survey (1998) on the South Fork Eel River near Leggett (Station 11475800).

The groundwater underlying the project area is not included in any of the groundwater basins mapped by the California Department of Water Resources (2003). No groundwater quality data exists for the project region. Groundwater has not been monitored by a public agency primarily because no monitoring wells lie within a groundwater basin designated by the Department of Water Resources.

There are no public water systems in the area. The Redwoods River Resort receives its water from a private well located on the property. Other attractions in the area, such as the World Famous Tree House and the Campbell Brothers at Confusion Hill businesses, also receive water from private groundwater wells.

2.8.3 Impacts

Build Alternatives

For all build alternatives, the primary potential for water quality impacts would come from two sources: soil erosion and suspended solids being delivered to the South Fork Eel River. There would be a low potential for non-stormwater contaminants from construction activities to enter the river. Stormwater runoff from the proposed project would drain into the South Fork Eel River. Because the amount of new surface roadway being built is slightly less than the existing U.S. 101 (thus decreasing the amount of impervious surface), and no increase in traffic volume is expected due to construction of the U.S. 101 realignment, stormwater runoff volumes would not increase with the implementation of the project. The project would also include up to five disposal sites (see Figure 1.4, section 1.3).

Based on the implementation of Caltrans water pollution prevention Best Management Practices, all alternatives (including disposal sites) would be expected to have negligible water quality impacts, either on a temporary or permanent basis.

Removal of Existing U.S. 101

Removal of existing U.S. 101, including all infrastructure, would require demolition, grinding, and earthwork activities that would create debris and sediment on-site that could be transported by storm water into the South Fork of the Eel River. The recontoured, restored area would be vulnerable to erosion until vegetation provides effective ground cover to protect soils from erosion processes. If fill material were used to build up or recontour the restored area, stockpiles would be sources of sediment that could move downslope into the river. Mitigation measures for these potential impacts are discussed in Section 2.8.4 (Construction Activities Water Pollution Prevention).

Temporary Impacts

During construction, temporary adverse impacts could occur due to increased erosion that could eventually be transported into nearby waterways with storm runoff. The potential also exists for spills and leaks of lubricants and other fluids associated with vehicles and equipment used during construction, and discharges of non-stormwater constituents generated from construction activities.

Other sources of temporary adverse impacts to water quality include temporary water crossings, pile driving and other construction activities in the floodplain/river, and equipment/materials that could either be discharged directly in the floodplain/river or placed where they could be carried into the river.

Figure 2.11 Regional Hydrology

The project does not involve excavations that could substantially affect groundwater resources. Though not anticipated, dewatering activities may be required for groundwater encountered during excavation activities in the floodplain.

2.8.4 Avoidance, Minimization, and Mitiagtion Measures

Mitigation measures for construction and long-term impacts would focus on the control of sediment, suspended solids, and non-stormwater materials from entering waterways. The project design would incorporate temporary and permanent soil stabilization, sediment control, and

waste management measures to ensure that rain water would minimize or avoid soil erosion and to prevent construction related pollutants from entering surface or groundwater. Implementation of long-term mitigation measures including design and treatment Best Management Practices would also reduce or avoid impacts to water quality.

Long-term Water Pollution Prevention

The following permanent water pollution prevention Best Management Practices, as determined to be appropriate by the hydraulics and landscape architecture specialists, would be incorporated into the project in order to avoid and minimize the impacts to the South Fork of the Eel River.

- Preservation of existing vegetation
- Concentrated flow conveyance systems
- Ditches, berms, dikes, and swales
- Overside drains
- Flared end sections
- Outlet protection/velocity dissipation devices
- Slope/surface protection systems
- Vegetated surfaces
- Hard surfaces
- Biofiltration (swales and strips): water runoff from the new highway alignment and the bridges would be captured and directed to rocked-lined ditches, where sediments and pollutants would be deposited. The water would naturally filter into the ground. The decommissioning of the existing U.S. 101 would include the removal of all man-made features, recontouring of the landscape, and revegetation. Detention and filtration bases would not be installed and maintained. Where possible, a berm will be place below the existing slide (at existing highway elevation) to capture falling material. This berm and the soil and rocks collected behind it would not be cleared, cleaned or maintained.

Water Pollution Prevention During Construction

Erosion control measures would be applied to all exposed areas during construction, and may include the trapping of sediments within the construction area through the placing of barriers (e.g., straw bales, mulches, or mats) at the perimeter of downstream drainage points or through the construction of temporary detention basins. Other methods of minimizing erosion impacts include limiting the amount and length of exposure of graded soil and hydromulching.

Caltrans-approved construction Best Management Practices applicable to this project for temporary soil stabilization include:

- Preservation of existing vegetation
- Hydraulic mulch

- Hydroseeding
- Soil binders
- Straw mulch
- Geotextiles, plastic covers, and erosion control blankets/mats
- Wood mulching
- Earth dikes/drainage swales and lined ditches

Caltrans-approved construction Best Management Practices applicable to this project for temporary sediment control could include:

- Silt fences
- Sediment/desilting basins
- Sediment traps
- Check dams
- Fiber rolls
- Gravel bag berms
- Sandbag barriers
- Straw bale barriers

Where feasible, the previously listed water pollution prevention methods would be considered for aspects of construction, such as: temporary access roads, temporary bridges (including trestles), perimeter control around staging areas, equipment storage, contractor headquarters, pier construction and pile driving activities, construction-related vehicles including haul trucks for excavated material, disposal sites, and any other area where sediment or non-stormwater materials could be transported into a drainage or waterway, and for the decommissioning activities of the existing U.S. 101 roadway.

If unexpected groundwater were encountered during excavations, the Eureka Office of Environmental Engineering would be contacted regarding the handling and disposal of this water. If this water were to be discharged into any jurisdictional waters, appropriate dewatering procedures would be required to reduce or eliminate any potential discharge of pollutants to the extent feasible, as described in the Statewide General Construction Permit.

Emergency Spill Response

Fueling or maintenance of construction vehicles would occur in the project area during construction, and the risk of accidental spills or releases of fuels, oils, or other potentially toxic materials would exist. An accidental release of these materials could pose a threat to water quality if contaminants were to enter culverts, the South Fork of the Eel River or its tributaries,

or local groundwater. The magnitude of the impact from an accidental release would depend on the amount and type of material spilled.

A spill on the roadway would trigger immediate response actions to report, contain, and mitigate the incident. The California Office of Emergency Services has developed a Hazardous Materials Incident Contingency Plan, which provides a program for response to spills involving hazardous materials. The plan designates a chain of command for notification, evacuation, response, and cleanup of spills. Caltrans also has spill contingency procedures and response crews.

2.8.5 Cumulative Impacts

Due to avoidance, minimization and mitigation measures, cumulative surface water impacts are not anticipated.

2.9 Geological Resources

This section evaluates the potential for the project to affect geological resources.

2.9.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are a prime consideration in the design and retrofit of structures. The Department's Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. The current policy is to use the anticipated Maximum Credible Earthquake, from young faults in and near California. The Maximum Credible Earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

2.9.2 Affected Environment

A Geotechnical Report was completed in November 2004. The project site is located on the west side of the northern Coast Ranges Geomorphic Province. The Coast Ranges Province is composed primarily of rocks of the Franciscan Complex. The Franciscan Complex has been divided into three parallel belts: the Coastal Belt, the Central Belt, and the Yolla Bolly Belt. Transform faults and east dipping thrust faults form the boundaries between these belts.

The Coastal Belt of the Franciscan Complex is divided into the Coastal terrane and the Yager terrane. Bedrock at the project site is Coastal terrane. Geologic mapping show the project area bedrock divided into three lithologic units. These units are a bedded sandstone unit, a massive sandstone unit, and an inter-layered shale and sandstone unit. In addition, there are three Quaternary age river terrace deposits, older inactive landslide deposits, and active landslide deposits on the site.

Two active landslides were identified in the project area. The large slide on the east side of the South Fork of the Eel River is known as the Confusion Hill landslide (existing U.S. 101 crosses this slide). The Confusion Hill slide appears to be a deep seated wedge-type block failure within the bedrock. Two active debris flows are associated with the Confusion Hill slide. The debris flows are shallow superficial failures. Four topographic features were interpreted to be older inactive landslides. Trees growing on the inactive slides indicate they have not moved for hundreds of years. Another topographic feature was interpreted to be an older inactive debris flow. Mature trees growing on this feature indicate that it has been stable for many years.

The second active rockslide is located on the west side of the river and straddles the proposed new highway alignment. This slide is small in nature, and geotechnical engineering would ensure bridge footings would be deep-seated enough in order to avoid potential future highway/slide conflicts.

The soils within the project limits are composed of clayey silt to clayey, silty, sandy gravel with cobbles and boulders. The bedrock is composed of shale and sandstone. No serpentine exists within the project limits. Although the soils in the project area are mapped as deep and well drained, surface runoff is rapid and the hazard for water erosion is severe if the surface is left bare.

Overall, the South Fork of the Eel River basin is underlain by Franciscan Melange and is unstable and highly erodible. Greywacke, relatively soft sedimentary sandstone, is the prevalent rock type. Coupled with high precipitation, steep slopes, and a great deal of anthropogenic soil disturbance, the basin has high rates of slope erosion and resultant stream sedimentation.

Seismicity

The project is on the northern end of the San Andreas Fault zone. The San Andreas Fault zone is the major boundary between the Pacific plate to the west and the North American plate to the east. The active San Andreas Fault is 22.5 km (14 miles) to the southwest of the project limits. The Whale Gulch-Bear Harbor Fault is nine miles to the west. The Maacama-Brush Mountain

Fault is nine miles southeast of the site and the Lake Mountain Fault is 30.6 km (19 miles) east. The San Andreas Fault system terminates in the Mendocino triple junction where the North American plate, the Pacific plate and the Gorda Plate meet. The Mendocino triple junction is one of the most seismically active areas of California. The Mendocino triple junction is approximately 38.6 km (24 miles) northeast of the project.

No active faults are known to cross the site; therefore, the hazard of surface rupture during an earthquake is not likely.

2.9.3 Impacts

Impacts would not be anticipated with any of the build alternatives.

Alternative 7 (No-Build): Under this alternative no work would be performed to address the unreliability of the route at this location. The current series of closures and repairs would continue with the possibility for a catastrophic slide event that could disrupt service on U.S. 101 for six months or more.

2.9.4 Avoidance, Minimization, and Mitigation Measures

After construction is complete, a portion of a hill on the peninsula below the newly constructed road may have the potential for slipping out. One or more of the following measures would be included in the design of the project.

- Grading
- Creating a buried soldier pile and tie back wall on the east side of the roadway to support the remaining slide deposit beneath the roadway
- Creating a rock slope protection buttress at the toe of the landslide
- Completely excavating the remaining slide debris and replacing the excavation with an engineered buttress fill

For all build alternatives, state and federal erosion control guidelines would be followed and all practicable Best Management Practices in the water quality section would be implemented.

Bridge construction would include measures to protect against seismic events.

2.9.5 Cumulative Impacts

Due to avoidance and minimization measures, cumulative impacts on geological resources would not be anticipated.

2.10 Hazardous Waste/Materials

This section evaluates the potential for the project to encounter hazardous waste/materials.

2.10.1 Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for "cradle to grave" regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act of 1976, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

2.10.2 Affected Environment

An Initial Site Assessment for hazardous waste was completed in July 2004. The report indicated there would be a potential for the project to encounter hazardous waste or materials. The Redwoods River Resort includes several buildings that may have lead-based paint, asbestos-containing material, or other hazardous substances. Furthermore, the paint striping on the existing U.S. 101 may contain lead.

2.10.3 Impacts

The existing U.S. Route 101 would be included in all build alternatives. The paint striping on the existing highway would have the potential to contain lead-based paint.

Alternative 3 (Blue Alignment)
Alternative 3 would require the acquisition and removal of several Redwoods River Resort structures. If this alternative were chosen, further hazardous waste investigations would be required.

2.10.4 Avoidance, Minimization, and Mitigation Measures

In order to avoid potential hazardous waste or hazardous materials and other potentially sensitive resources (e.g., biological and cultural), Alternative 2 (White Alignment) has been identified as the preferred alternative. During the removal of existing U.S. 101, lead-containing highway striping would be removed and disposed of using methods pursuant to state and federal guidelines.

2.10.5 Cumulative Impacts

Due to avoidance measures, cumulative impacts regarding the disposal of hazardous materials would not be anticipated.

2.11 Air Quality

This section evaluates the potential for the project to affect air quality.

2.11.1 Regulatory Setting

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for carbon monoxide (CO),

nitrogen dioxide (NO_2), ozone (O_3), and particulate matter that is 10 microns in diameter or smaller (PM_{10}).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity is concerned with how well the region is meeting the standards set for the pollutants listed above. At the regional level, Regional Transportation Plans are developed that include all of the transportation projects planned for a region over a period of years, usually 20. Based on the projects included in the Regional Transportation Plan, an air quality model is run to determine whether or not the implementation of those projects would result in a violation of the Clean Air Act. If no violations would occur, then the regional planning organization, such as Mendocino Council of Governments (MCOG) and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the Regional Transportation Plan is in conformity with the Clean Air Act. Otherwise, the projects in the Regional Transportation Plan must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the Regional Transportation Plan, then the proposed project is deemed to be in conformity at the regional level.

Conformity at the project-level is also required. Again the pollutants of concern are: carbon monoxide (CO), nitrous dioxide (NO_2), ozone (O_3) and particulate matter that is 10 microns in diameter or smaller (PM_{10}). If a region is meeting the standard for a given pollutant, then the region is said to be in "attainment" for that pollutant. If the region is not meeting the standard, then it is designated a "non-attainment" area for that pollutant. Areas that were previously designated as non-attainment areas but have recently met the standard are called "maintenance" areas. If a project is located in a non-attainment or maintenance area for a given pollutant, then additional air quality analysis and reduction measures in regard to that pollutant is required. This is most frequently done for Carbon Monoxide and Particulate Matter$_{10}$.

2.11.2 Affected Environment

This project is located in Mendocino County, which is located in the North Coast Air Basin. Under National Ambient Air Quality Standards, Mendocino County is classified as attainment for all transportation related criteria pollutants (carbon monoxide, ozone, and particulate matter-

10 [PM10]). Under California Ambient Air Quality Standards, it is classified as attainment for both carbon monoxide and ozone, while non-attainment for PM10 (Table 2.4).

Air Quality for transportation projects is evaluated on both a regional impact basis and local (project-level) impact basis. Regional impacts are related to transportation criteria air pollutants significant on a regional basis. These air pollutants are ozone and particulate matter-10. Local impacts are related to transportation criteria air pollutants, which are significant on a local basis. This air pollutant is carbon monoxide.

Regional Air Quality Conformity

National Ambient Air Quality Standards (NAAQS) are set by the U.S. Environmental Protection Agency under the Federal Clean Air Act (Table 2.4). The standards that are normally relevant for transportation purposes pertain to ozone, particulate matter (PM10 and PM2.5-10 and 2.5 micrometers in aerodynamic diameter), carbon monoxide, and nitrogen dioxide. Mendocino County is designated "attainment/unclassified" for all NAAQS, and has never been designated non-attainment for any NAAQS since 1990.

The project is included in the 2004/2005 Fiscal Year State Highway Operation and Protection Program (SHOPP), and is proposed for funding through the Federal Major Damage Restoration Program. The project is also included in the 2003 Mendocino County Regional Transportation Plan. Funding has been programmed through the construction phase, with project completion scheduled for 2009.

The Federal Clean Air Act and U.S. EPA regulations define a "conformity" process that must be followed for regional planning and project approvals in federal non-attainment areas. Since Mendocino County is and has been at all times since 1990 "attainment/unclassified" for all federal air quality standards, project level conformity analysis is not needed. A “Hot Spot” air quality analysis for this project would not be required.

2.11.3 Impacts

Permanent Air Quality Impacts

Air quality impacts would not be anticipated since the project:

- would not significantly increase vehicles operating in cold start mode
- would not significantly increase traffic volumes
- would not impair traffic flow

Temporary Construction Impacts

The proposed project may result in the generation of short-term construction-related air emissions, including fugitive dust and exhaust emissions from construction equipment. Fugitive dust, sometimes referred to as windblown dust or PM_{10}, would be the primary short-term construction impact, which may be generated during excavation, grading and hauling activities. However, both fugitive dust and construction equipment exhaust emissions would be temporary and transitory in nature.

2.11.4 Avoidance, Minimization, and Mitigation Measures

Implementation of the Caltrans Standard Specifications, an integral part of all construction contracts, is expected to effectively reduce emission impacts during construction. The provisions of Section 7-1.01F, Air Pollution Control, and Section 10, Dust Control, require the contractor to comply with all pertinent rules, regulations, ordinances, and statues of the local air district.

2.11.5 Cumulative Impacts

Since the project would not be capacity increasing and would not create increased traffic volumes, cumulative impacts would not be anticipated.

Table 2.4 Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards [1]		Federal Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	0.12 ppm (235 µg/m³)[8]	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	—		0.08 ppm (157 µg/m³)[8]		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		50 µg/m³		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		65 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m³)		—		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m³)	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		—	—	—
Lead[9]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[9]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

2.12 Biological Resources

This section evaluates the project's potential to affect biological resources, and is divided into five sub-sections: natural communities, wetlands and other waters, animal species, threatened and endangered species, and invasive species. Protocol surveys did not identify Special-Status Plant Species within the project limits, therefore (per California Environmental Quality Act Guidelines and National Environmental Policy Act guidelines) plant species are not addressed in this chapter.

2.12.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed in the Threatened and Endangered Species Section 2.13.5. Wetlands and other waters are discussed in Section 2.13.2.

2.12.1.1 Affected Environment

A Natural Environment Study was completed in January 2005. The reports findings and conclusions are summarized below.

Redwood Forest

The southern portion of the project area is located within a redwood forest (Figure 2.13). This stand of trees is approximately 6.9 hectares (17 acres) and is bisected by the existing U.S. 101. At this location, there is a business on each side of the highway: Campbell Brothers at Confusion Hill Gift and the Redwoods River Resort businesses. Therefore, paved areas surround large portions of the redwood stand.

Redwood trees dominate the canopy at the south end of the project limits (Figure 2.13). Openings in the canopy provide sufficient light for a thick huckleberry layer, which shades the forest floor, resulting in a sparse herb layer. Tan oak and madrone form the subcanopy in places where the understory is not developed.

Wildlife Associated with Redwood Forests.

Several terrestrial and amphibian species, including the federally listed marbled murrelet, use redwood forests as habitat. Due to the following reasons, the 6.9 hectare (17-acre) stand of redwood forest located within the project limits was determined to be relatively poor habitat:

- The stand is fragmented from nearby large old growth stands
- The stand is located in the southern portion of the redwoods range, in a relatively dry area because it is approximately 32.2 km (20 miles) inland and is not influenced by coastal fog.
- The stand is located adjacent to U.S. 101, and other developed areas (e.g., campground) that create disturbance and attract corvids (e.g., blackbirds, jays, and crows).

Given the potential abundance of insects, fungus, and huckleberry in the stand, the stand could provide adequate habitat for shrews, voles, insectivorous birds, and deer. Other species identified in this portion of the project area include the common raven, Stellars jay, towhee, varied thrush, and the acorn woodpecker.

Mixed Evergreen Forest

Some of the mixed evergreen forest on the peninsula could have suitable foraging habitat for the northern spotted owl (Figure 2.13). The peninsula has been logged, with most of the area second or third growth Douglas fir, and redwood. Evergreen trees and conifers with a relatively low cover of winter-deciduous trees dominate mixed evergreen forests. Geographically and biologically, this forest forms a transition between dense coniferous forests of northwestern California and open woodlands of the interior coast (Figure 2.13).

Within the project area, Douglas fir is the dominant conifer, with redwood trees interspersed on the north facing slopes. The understory consists of tree saplings and evergreen huckleberry. The south facing slopes are dominated by black oak, tan oak, bay laurel (California bay), and coast live oak woodlands. Shrub and herb layers are less developed on south facing slopes.

One potential disposal site (Wayside Gulch, see figure 1.4, section 1.3 for location) consists of mixed evergreen forest, and is located on the west side of U.S. 101 at the northern project limits. The site contains 0.12 hectare (0.3 acre) of mixed evergreen forest suitable for foraging spotted owls. Surveys did not indicate any sensitive species.

Wildlife Associated with Mixed Evergreen Forests

Birds associated within mixed evergreen forests include Wilson's warbler, California towhee, and common raven. Common reptiles and amphibians of mixed evergreen forests include the northern alligator lizard, western fence lizard, and Ensatina. The shrub layer potentially provides food and cover for Virginia opossums, dusky footed wood rats, coyotes, gray foxes, black bears, and black-tailed deer.

The dense huckleberry understory of the north facing slopes is not conducive to foraging by spotted owls. The south facing slopes, having a less dense subcanopy may provide forage for the spotted owl, but the fact that they are south facing, and drier, renders them less suitable for nesting because south facing slopes are not consistent with owl nesting habitat types, and because the trees on the south facing slopes are not large enough and do not have the characteristics suitable for nesting owls such as broken off crowns or trash piles.

Riparian Habitat

As a result of the topography of the area, riparian communities are sparse within the project limits. The channel in the southern portion of the project is a wide canyon due to the geomorphology of the South Fork of the Eel River. The river at the north end of the project area runs through a gorge. The majority of the riparian communities within the project area are found at the southern end of the project area in thin strips adjacent to the banks of the South Fork of the Eel River (mixed riparian woodlands), and on a large gravel bar within the flood plain (seasonal willow riparian scrub).

Mixed riparian woodlands on the margins of the river are dominated by alder, cottonwood, and willow; subdominant species include California grapevine and blackberry.

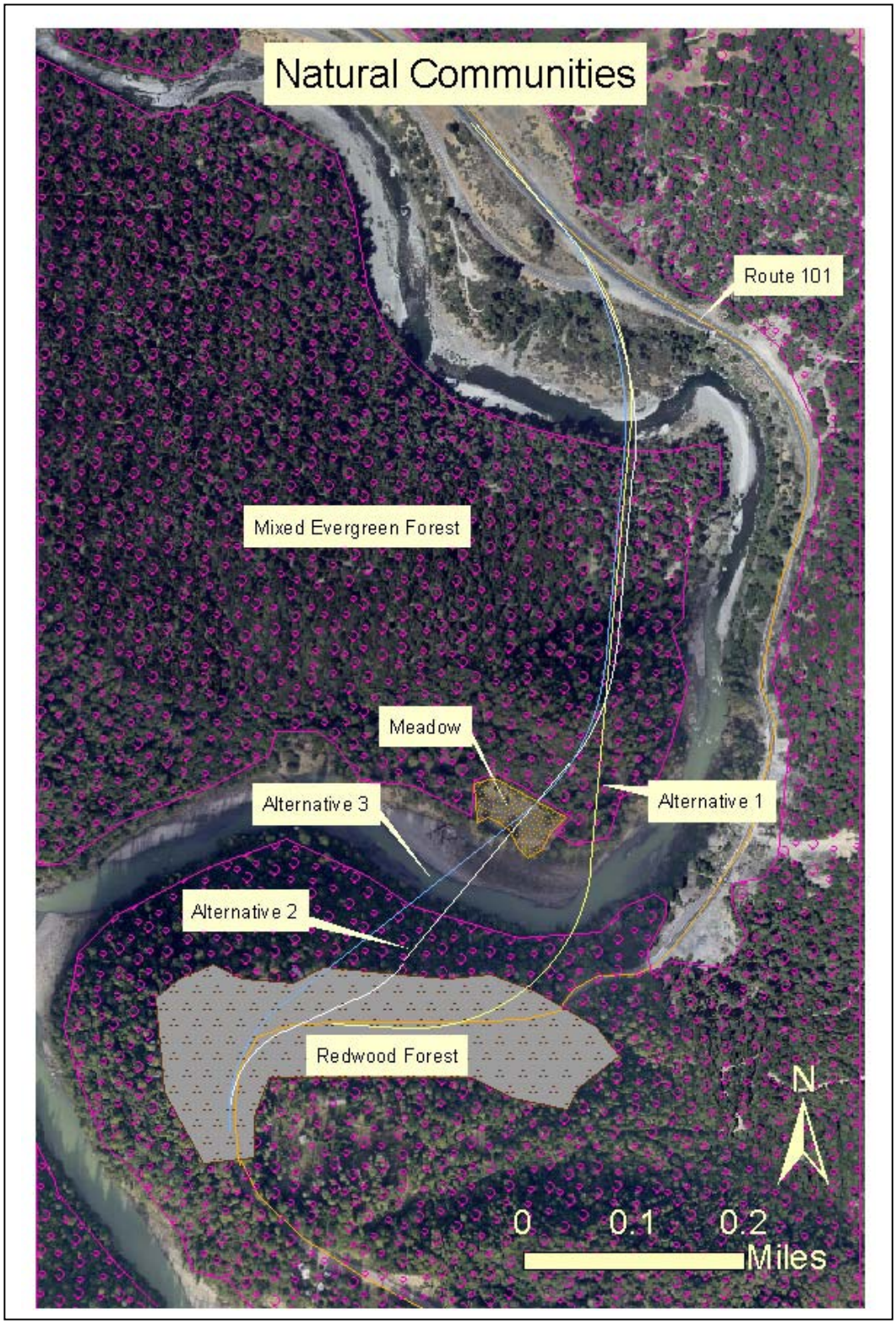
Willow riparian scrublands (on the gravel bar) are dominated by coyote brush, scotch broom, and willow. This habitat is comprised of low-stature plants and lacks the multi-layered vegetation of most other riparian types.

Wildlife Associated with Riparian Areas

Riparian communities support the most dense and diverse bird habitat in northern California, and in the project area. Species noted within the riparian communities include: chickadee, killdeer, orange crowned warbler, and Wilson's warbler. The riparian communities within the project area

do not provide good quality habitat for mammals such as deer, raccoons, ringtails, striped skunks, gray foxes or rodents because the habitat is not extensive enough to support populations of these species.

Figure 2.13 Natural Communities



Meadows

Meadows are herbaceous communities dominated by mixtures of perennial grasses and forbs with other grass-like species, such as rushes and sedges. The meadows in the project do not include woody vegetation, thus they are not included in riparian scrub communities.
The meadow within the project area is on a terrace that is well-drained, being several yards above the seasonal water table. Parts of it support a prevalence of eggbract sedge (*Carex ovalis*), but it does not qualify as a jurisdictional wetland because it lacks hydric soil and hydrologic characteristics. The meadow may be saturated or flooded for short periods during and immediately following heavy rains, but the upper soil layers drain rapidly. Water tables within several yards of the soil surface and occasional surface saturation are conducive to establishment of hydrophytic species. Eggbract sedge is a water obligate in California, but according to the National Wetlands Indicator List, it is Facultative in Oregon and Washington. Conditions in this part of California are similar to Washington and Oregon and it is the biologist's opinion that in this part of California, eggbract sedge is equally likely to occur in wetlands and uplands. A possible explanation for the lack of hydric soil indicator may be depth to groundwater, short duration during flooding, or lack of soil saturation. In the dry meadow, surface relief, landscape position, and soil texture combine to preclude development of wetland hydrologic conditions either from surface flooding or shallow groundwater, preventing water from standing for a long enough period to create hydric soils.

Wildlife Associated with Dry Meadows

Wildlife associated with the dry meadows identified in the project area include western fence lizard, black-tailed deer, Stellars jay, acorn woodpeckers, and common raven.

Disposal Sites

The proposed disposal sites are in previously disturbed areas (except for Wayside Gulch, see Mixed Evergreen Forest discussion of Natural Communities Biology section), and no sensitive biological resources have been observed within these areas. Several trees would be removed, but surveys indicated they do not provide suitable habitat for listed species. See Figure 1.4 in section 1.3 for disposal site locations.

2.12.1.2 Impacts

For all alternatives, wildlife passage would not be impeded because access to the river would be maintained under the bridges. The heights of the two bridges are such that they provide adequate clearance for animals to access the South Fork of the Eel River.

Redwood Forest

Alternative 1 (Black Alignment)

Alternative 1 (Black Alignment) follows the existing U.S. 101 alignment until it reaches the Campbell Brothers at Confusion Hill business. At this point the new alignment would proceed north through a section of mature redwood forest (Figure 1.4, Section 1.2). This alternative would require the removal of a minimum of 18 trees that range from 1 to 1.4 meters (3.3 feet to 4.6 feet) in diameter at breast height, and the removal of one old growth meter 2.5 meter (8.2 ft.) diameter at breast height redwood. Of the 18 or more trees removed, five to six removed redwoods would be from directly in front of the Campbell Brothers at Confusion Hill business. Trimming would be required for the existing trees and shrubs within 3.6 meter (12 ft.) of the new alignment's edge of pavement.

Two 1.2 meter (3.9 ft.) diameter trees are within 3.6 meter (12 ft.) of the edge of pavement where there is no cut or fill, and are in a position where they could sustain some level of damage. However, specific construction practices would avoid impacts to these trees. The estimated tree impacts also include a cluster of three trees (one is a 2.5 meter [8.2-ft.] diameter old growth redwood), that are subject to indirect impacts because they are within 3.6 meter (12 ft.) of the top of a cut slope.

Alternative 2 (White Alignment)

Alternative 2 leaves the existing U.S. 101 alignment immediately north of the entrance to the Redwoods River Resort. This alternative travels along the edge of a relatively undisturbed forest for about 122 meter (400 ft.) before bridging the South Fork of the Eel River (Figure 1.5, Section 1.2). Five trees would be removed: two 0.9 meter (35 inch), a 1 meter (37 inch), and a 1.1 meter (39 inch) diameter at breast height redwoods, and a 0.9 meter (35 inch) diameter at breast height Douglas fir. Trimming would be required for the existing trees and shrubs within 3.6 meters (12 ft.) of the new alignment's edge of pavement.

Alternative 3 (Blue Alignment)

Alternative 3 leaves the existing U.S. 101 alignment immediately south of the entrance to Redwoods River Resort, bisecting the campground within the redwood forest (Figure 1.6, Section 1.2). Four to six 1 to 1.3 meter (36 to 48-inch) diameter at breast height redwoods would be removed. Trimming would be required for the trees and shrubs within 3.6 meter (12 ft.) of the new alignment's edge of pavement.

Mixed Evergreen Forest

For all build alternatives, approximately 3 hectares (7.4 acres) of mixed evergreen forest would be removed for construction of the through-cut on the peninsula on the west side of the river (Figure 1.3, Section 1.3). Approximately half of that area is suitable for spotted owl foraging, with no suitable nesting trees being identified for the owl or other listed species. Two and nine-tenths hectares (7.1 acres) adjacent to the peninsula through cut would be cleared for equipment access. When clearing for equipment access no trees larger then .25 meters (11 inches) diameter at breast height would be removed. If the Wayward Gulch disposal site is utilized during the Confusion Hill relocation 0.12 hectares (0.3 acres) additional of mixed evergreen forest that provides foraging habitat for the northern spotted owl would be removed.

Riparian Habitat

For all build alternatives, impacts to the riparian area would be minimal. The location of the proposed bridge at the north end of the project area lacks a well developed riparian community because it is within an area of steep bedrock (Figure 1.3, Section 1.3). Placement of the bridges would be above the 100 year floodplain, resulting in no permanent impacts to riparian habitat. Temporary impacts to riparin habitat would be minor. Seasonal shrubs in the access area would be cut at ground level and are expected to re-sprout.

Meadows

The total area of the dry meadow, located at the north abutment of the south bridge (see Figure 2.13), is approximately 0.8 hectares (2 acres). All build alternatives include a pier for the southern bridge that would be located within this meadow. The meadow would be temporarily impacted during construction because it would be used for a staging area. The project would not have a substantial impact on this community because the majority of the work would be accomplished during the dry season, which would avoid compaction of the soils. Grading in the dry meadow would be minimal, as the topography is relatively flat.

2.12.1.3 Avoidance, Minimization, and Mitigation Measures

In order to avoid and minimize impacts to natural communities, Alternative 2 (White Alternative) has been identified as the preferred alternative. Alternative 2 would have the fewest overall impacts on natural communities. Potential impacts would be further avoided and minimized by placing fencing around trees, perform work by hand around tree roots, and hand placement of shoulder backing around trees roots as per the instructions of an arborist.

2.12.1.4 Cumulative Impacts

Conditions and activities occurring on private lands exert a greater influence on habitat. Agriculture, timber harvest, water diversions and withdrawals, urbanization, road building, and livestock grazing have resulted in loss of riparian vegetation, migration barriers, increased water temperatures, increased nutrient loading, loss of pool habitat, and increased fine sediment. Relocation of US 101 at Confusion Hill would not contribute to cumulative loss of riparian vegetation, would not create a migration barrier, and would not increase water temperatures or nutrient loading. The construction location of the bridges above the 100-year floodplain would avoid permanent impacts to turbidity, water supply, and direct mortality to salmonids. Cumulative impacts on listed species or habitats would not be expected to occur.

2.12.2 Wetlands and Other Waters

2.12.2.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by the Environmental Protection Agency (EPA).

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the Department of Fish and Game and the Regional Water Quality Control Boards. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Game before beginning construction. If the Department of Fish and Game determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. The California Department of Fish and Game jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Game.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The Regional Water Quality Control Board also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

2.12.2.2 Affected Environment

The Natural Environment Study, completed January 2005, did not identify any wetlands within the project limits. The South Fork of the Eel River flows through the project limits, and has a watershed of approximately 1785 square km (689 square miles) in size. The river flows for approximately 169 km (105 miles) before joining the main stem Eel River (see Figure 2.12, Section 2.9.2, Water Quality).

The South Fork of the Eel River has impaired water quality for sediment and temperature and is listed on the U.S. Environmental Protection Agency's Section 303(d) List of Water Quality Impaired Segments. Waters on the 303(d) list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology.

The following coordination and permits would be required for the project:

- California Department of Fish and Game Streambed Alteration Agreement and California Wild and Scenic River approval
- California Department of Fish and Game California Endangered Species Act Section 2081 incidental take permit
- North Coast Regional Water Quality Control Board Section 401 Certification
- National Pollution Discharge Elimination System (NPDES) compliance
- NOAA-Fisheries Section 7 Consultation
- USFWS Section 7 Consultation
- National Park Service Wild and Scenic River Consultation
- U.S. Army Corps of Engineers Section 404 Permit

2.12.2.3 Impacts

The impacts to the South Fork of the Eel River would be minimal and temporary. Vehicles and equipment would use out-of-river temporary crossings, however limited wet fords would be required to construct the temporary structures and to stage equipment. Installation of temporary piles would be within the wetted channel.

Use and presence of construction equipment in the vicinity of the wetted channel would create the potential for hazardous material leaks or spills.

2.12.2.4 Avoidance, Minimization, and Mitigation Measures

Potential wetlands and waters of the United States impacts would be avoided through the design of bridge piers outside the 100 year flood plain. Implementation of the permit requirements by the regulatory agencies would mimize potential impacts to water quality.

2.12.2.5 Cumulative Impacts

Due to placement of bridge piers above the 100 year flood plain, cumulative impacts on waters of the United States would not be anticipated.

2.12.4 Animal Species

2.12.4.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NOAA Fisheries), and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.13.5. All other

special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1601 – 1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

2.12.4.2 Affected Environment

A Natural Environment Study was completed in January 2005. The only non-threatened/endangered special-status species found within the project limits is the foothill yellow-legged frog (Federal Species of Concern). Frogs of this species were identified within the southern road access area, between the gravel bar and the western bank of the river (Figure 2.14).

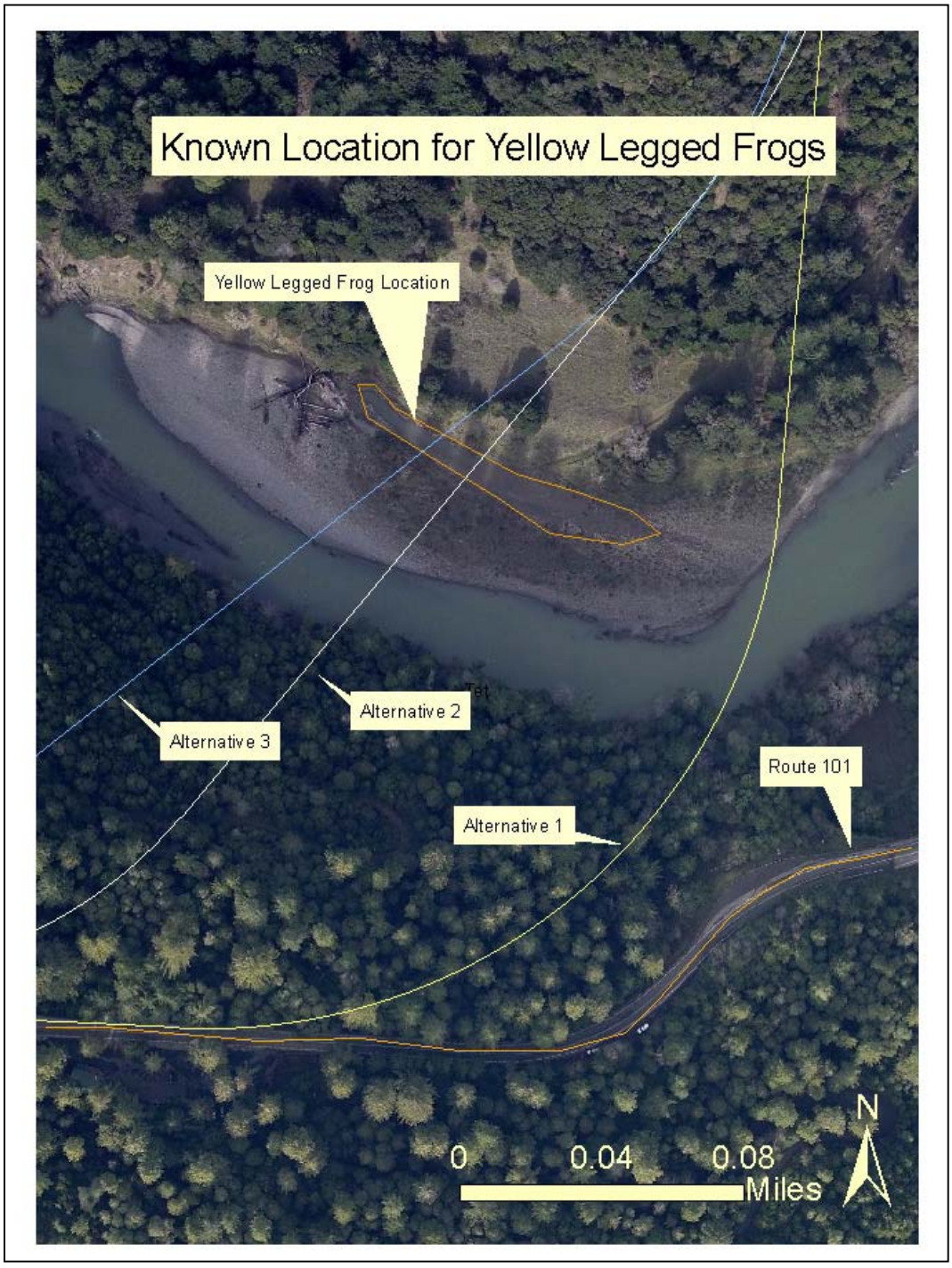
2.12.4.3 Impacts

Construction equipment would avoid the seasonal isolated pool outside of the active low flow channel in the southern access area where the yellow-legged tree frogs were identified. The frogs do have a low potential to be present adjacent to the river throughout the project limits. Therefore, the frogs could be affected by equipment crossing the river during the temporary access bridge installation. It is assumed that most of the tadpoles would flee the area, but some may be crushed if they were to take cover underneath rocks in the vicinity of the temporary access trestle. Impacts would be minimal because the majority of construction access would occur on the temporary trestles, and equipment would not be staged along the margin of the river.

2.12.4.4 Avoidance, Minimization, and Mitigation Measures

In order to avoid and minimize potential impacts to yellow-legged frogs, the backwater of the area where they were identified would be maintained using a culvert. The installation of the culvert would further protect any tadpoles and frogs that may be moving through the area. In addition, Environmentally Sensitive Area fencing would be installed around the area. The fencing would protect the area from unnecessary construction-related encroachment and disturbance.

Figure 2.14 Yellow-Legged Frog Location



2.12.4.5 Cumulative Impacts

Due to avoidance and minimization measures, such as installation of Environmental Sensitive Area fencing and culvert installation to maintain backwater, cumulative impacts on yellow-legged frogs would not be anticipated.

2.12.5 Threatened and Endangered Species

2.12.5.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act: United States Code (USC), Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act, California Fish and Game Code, Section 2050, et seq. The California Endangered Species Act emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Game is the agency responsible for implementing the California Endangered Species Act. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the California Department of Fish and Game. For projects requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Game may also authorize impacts to California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established a new requirement to describe and identify “essential fish habitat” in each fishery management plan. The Act requires all Federal agencies to consult with NMFS on all actions, or proposed actions, permitted, funded or undertaken by the agency, that may adversely affect essential fish habitat. Only species managed under a Federal fishery management plan are covered under essential fish habitat.

Essential fish habitat is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of essential fish habitat, "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters and associated biological communities; "necessary" means habitat required to support a sustainable fishery and a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

Essential fish habitat for the Pacific coast salmon fishery means those waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and a healthy ecosystem. To achieve that level of production, essential fish habitat includes all those streams, lakes, ponds, wetlands, and other currently viable water bodies and most of the habitat historically accessible to salmon in Washington, Oregon, Idaho, and California. In the estuarine and marine areas, salmon essential fish habitat extends from the near shore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km/191 miles) offshore of Washington, Oregon, and California north of Point Conception. Freshwater essential fish habitat for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers, and longstanding, naturally-impassable barriers (e.g., natural waterfalls in existence for several hundred years).

Coho salmon and Chinook Salmon are covered under the Pacific Salmon Fishery Management Plan. Steelhead are not covered under a Federal fish management plan and therefore not subject to essential fish habitat.

2.12.5.2 Affected Environment

State and Federally Listed Fish Species

A Natural Environment Study was completed in January 2005. Three listed anadromous fish species are known to occur within the project limits: Southern Oregon/Northern California Coast coho salmon (*Oncorhynchus kisutch*), California Coastal Chinook salmon (*O. tshawytscha*), and Northern California steelhead (*O. mykiss*). All three species are listed as threatened under the Federal Endangered Species Act, and the Southern Oregon/Northern California Coast coho salmon and California Coastal Chinook salmon have designated critical habitat in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et

seq.). There is currently a draft proposal to designate critical habitat for the Northern California steelhead. Following the public comment period, the final rules are scheduled to be completed by NOAA-Fisheries by August 15, 2005.

In August 2002, under the California Endangered Species Act, the coho salmon was listed as a threatened species in the Oregon/Northern California Evolutionarily Significant Unit. Table 2.5 shows the scientific name, listing status under the Endangered Species Act, Federal Register Notice citation, and geographic distribution of the Evolutionarily Significant Units (ESU) addressed in this document.

Table 2.5 Listed Fish in Project Area

	Evolutionarily Significant Unit		
	Southern Oregon/Northern California Coasts Coho Salmon	**Northern California Steelhead**	**California Coastal Chinook Salmon**
Scientific Name	*Oncorhynchus kisutch*	*O. mykiss*	*O. tshawytscha*
Federal Listing Status	Threatened	Threatened	Threatened
Federal Register Notice	May 6, 1997, 62 FR 24588	June 7, 2000, 65 FR 36075	September 16, 1999, 64 FR 50394
Geographic Distribution	From Cape Blanco, Oregon, to Punta Gorda, California	From Redwood Creek in Humboldt County, California, to the Gualala River	From Redwood Creek (Humboldt County) South Through the Russian River
Critical Habitat Designation	May 5, 1999, 64 FR 24049	N/A	February 16, 2000, 65 FR 7764

All listed fish species potentially occurring in the project area are members of the genus *Oncorhynchus* of the family Salmonidae, and have anadromous life histories. These fish spend an extended period of time in freshwater or estuarine habitats. Because of their close genetic relationship, and similar life histories, these species have common traits and environmental requirements. The environmental requirements of these fish include:

- access between spawning areas and the ocean for both the ascending spawning adults and the descending smolts
- cool, clean well oxygenated water
- clean, well sorted gravels for spawning and early development, and physical conditions to provide juvenile rearing habitat in streams and in coastal wetlands.

State and Federally Listed Bird Species

Northern Spotted Owl

The northern spotted owl (Strix occidentalis caurina) was listed as a federally threatened species on June 26, 1990 (55 FR 26114). The northern spotted owl ranges from southwest British Columbia southward to San Francisco Bay. Northern spotted owls are found primarily in mature

and old growth conifer forests. Although the project limits does not contain old growth redwood forest, there have been several owl sightings a quarter mile from the project site. The owls were first seen in 1997 when a female and a young owl were observed. A pair with a single young was found on May 24, 2000 at the same location. The Arcata Fish and Wildlife Service provided a map of "detections" dated July 30, 2001; a male and female were reported about a half-mile north of the year 2000 detection. The 2001 detection is about half a mile northeast of the project site. In May 2002 and April 2003 the California Department of Fish and Game noted the sighting of a pair of owls within 30.5 meters (100 ft.) of the 2000 nest site, but nesting was not confirmed. The same pair of owls is most likely using this territory year after year. Surveys will be completed in 2005.

Marbled Murrelet

The marbled murrelet is listed as state endangered and federally threatened. Their range extends from Alaska to central California. Most murrelets are found within or adjacent to marine environments, but there have been detections further inland on rivers and lakes. They typically nest in large stands (40.5 hectares/100 acres) of old-growth forest. Nests are typically found on mossy, large diameter limbs.

The project area is not within the boundary of the critical habitat for the marbled murrelet as shown in 50 CFR 17 May 24th 1996 Federal Register per an email in March 2003 from the Fish and Wildlife Service Arcata field office. The California Department of Parks and Recreation indicated they had no record of marbled murrelet detections in the project vicinity. The US Forest Service Pacific Southwest Research Station conducted surveys near Piercy (about 8 km/5 highway miles to the north) and Standish-Hickey State Recreation Area (about 4.8 km/3 highway miles to the south) in 1988. No murrelets were detected during the surveys. There are no records of marbled murrelet sightings in the California Natural Diversity Database within the Noble Butte or Piercy US Geological Service 7.5 minute quadrangles. The Bureau of Land Management has conducted extensive surveys for the marbled murrelet in the Kings range; only one flyby was detected and no murrelets were found to occupy the area. Whereas Confusion Hill is not part of the Kings Range, murrelets that might nest near Confusion Hill would most likely access the area from the west, near the Kings Range, rather than flying the much longer route from the north or south of the Kings Range. The closest known nest sites for murrelets are located several miles north of Confusion Hill in Humboldt Redwoods State Park.

There is a 6.9 hectare (17 acre) stand containing suitable marbled murrelet nesting habitat in the southern portion of the project area, in the vicinity of Redwoods River Resort. Five protocol

surveys were conducted in 2004, and no murrelets were found. A two-year survey protocol will be completed in the 2005 season.

Bald Eagle

The bald eagle is federally listed as threatened and state listed as endangered. Bald eagle populations have been increasing and their range is expanding. Currently the range extends from central Alaska to northern Mexico. The bald eagle prefers aquatic ecosystems, and frequents estuaries, large lakes, reservoirs, major rivers, and some seacoast habitats with adequate food sources. Bald eagles use the South Fork of the Eel River as a migratory corridor, and during the winter there is a specific wintering site nearby the project area. There is no history of breeding in the project area. The nearest known breeding grounds are at Klamath Lake, several hundred miles away.

Western yellow-billed cuckoo

The western yellow-billed cuckoo was state listed as threatened in 1971, and elevated to endangered in 1988. The bird is a rare summer resident of valley foothill and desert riparian habitats throughout California. The most recent information indicates nesting pairs have been found on the lower Eel River (near Fortuna). Historically, there were scattered records around Humboldt Bay and south along the coast, but breeding status was undetermined. Alders have been found to be a component of the birds breeding along the Eel River. The western yellow-billed cuckoo inhabits deciduous riparian thickets or forests with dense, low-level foliage, abutting slow-moving watercourses, backwaters, or seeps. Willows are almost always a dominant component of the vegetation.

Surveys indicated that the riparian component in the project area is not extensive enough to provide habitat for the western yellow-billed cuckoo.

Section 7 Determination of the Project's Potential to Affect Listed Species

Table 2.6 identifies the potential for the project to affect listed species. To date, the U.S. Fish and Wildlife Service and the National Oceanographic and Atmospheric Administration have been informally contacted by Caltrans biologists to discuss the project, and the project's potential to impact listed species. Formal consultation under Section 7 of the Endangered Species Act with the U.S. Fish and Wildlife Service would occur after the circulation of the draft Environmental Impact Report/Environmental Assessment.

Table 2.6 Special-Status Species Potentially Affected by the Project

Common Name *Scientific Name*	Legal Status		Habitat Requirements	Habitat Present in the Study Area? (Yes/No)	Effect Determination (No effect, May affect, or not likely to adversely affect)	Rationale for Effect Determination
	Federal	State				
Southern Oregon/Northern California Coast coho salmon (Oncorhynchus kisutch	Threatened	Threatened	Low amountof fine sediment in spawning gravels and appropriate water temperatures	Yes	May affect	Noise vibrations and crushing for the installation of temporary trestles. Noise vibrations associated with blasting for the installation of the permanent bridge piers.
California Coastal Chinook salmon (Oncorhynchus tshawytscha)	Threatened	None	Low amountof fine sediment in spawning gravels and appropriate water temperatures	Yes	May affect	
Northern California steelhead (Oncorhynchus mykiss	Threatened	None	Low amountof fine sediment in spawning gravels and appropriate water temperatures	Yes	May affect	
Marbled Murrelet (Brachyranmphus marmoratus)	Threatened	Endangered	Nest in old-growth forest, but spend a majority of their lives on the ocean	Yes	May affect	Suitable nesting habitat in redwood forest at the south end of project. Project is not within designated critical habitat
Bald Eagle (Haliaeetus leucocephalus)	Threatened	Endangered	Aquatic ecosystems	Yes	No effect	Possible migration corridor and wintering site
Northern Spotted Owl (Strix occidentalis caurina)	Threatened	None	Large tracts of land containing significant acreage of older forest	Yes	May affect	Known nest site approximately 0.25 miles from the project area

2.12.5.3 Impacts

Fish

For all build alternatives, the permanent bridge piers are above the 100-year floodplain; thus there would be no permanent impacts to fish or fish habitat. Temporary impacts caused by underwater vibrations during construction could result in direct mortality to juvenile salmonids.

Temporary crossing structure features within the channel would be minimal, and would not inhibit salmonid rearing or migration.

Water quality may be affected temporarily by installation and removal of temporary access trestles, by the presence and maintenance of heavy equipment in the vicinity of the wetted channel, and by grading and other earth-moving activities. These impacts are expected to be minor due to the implementation of minimization measures and Best Management Practices.

The effects of the project on the Eel River salmonid populations are expected to be temporary. The nature of the temporary impacts suggests the project would not result in reductions in numbers, reproduction, or distribution of special-status fish populations, therefore the project would not likely prevent the survival and recovery of the Eel River salmonids.

Northern Spotted Owl

For all build alternatives, approximately 3.2 hectares (8 acres) of northern spotted owl foraging habitat would be impacted on the north facing slope on the southern half of the peninsula. This would constitute 1.02 percent of the available foraging habitat within a 1.1 km (0.7 mile) radius of the project area and is not a substantial reduction in foraging habitat. Initial surveys detected no nesting habitat within the project limits. A second year of surveys would be conducted in the 2005 season.

Blasting would occur as needed for construction of the roadway through-cut and the bridge abutments and piers. This may occur during the breeding season and within a half a mile from a known spotted owl breeding activity center. Given the sound dampening effect of the surrounding topography, noise levels at the known activity site would not be substantial. Consultation with the Fish and Wildlife Service would be conducted to ensure all practicable measures to avoid and minimize impacts are implemented.

Up to 20 hours of helicopter operations to stage equipment for bridge construction may be necessary. The terrain would shield the known breeding activity center from elevated noise levels during these helicopter operations.

During the removal of the existing highway, helicopters would operate outside the breeding season for spotted owls.

Marbled Murrelet

Although no potential marbled murrelet nesting trees would be removed, there would be construction within a stand of suitable habitat. Furthermore, blasting during construction could disturb the murrelet if they are present in the project area. Consultation with the U.S. Fish and Wildlife Service would be conducted to ensure that all measures to avoid and minimize potential impacts are implemented. Marbled murrelets are not expected to be present in the project area. Two year protocol surveys would be completed in 2005 and if murrelet presence is detected, work windows would be implemented.

Bald Eagle

Wintering bald eagles use specific perch trees within the project limits, but surveys have not detected eagles using those trees that are to be removed for the project. It is suspected that during and after the construction of the two bridges, the bald eagle known to use this area for a wintering site would voluntarily relocate. Because there is nearby habitat suitable for bald eagles, bald eagle impacts are expected to be negligible. The project would have no effect on the breeding of the bald eagle. Consultation with the Fish and Wildlife Service would be conducted to ensure all measures to avoid and minimize impacts are implemented.

Western yellow-billed cuckoo

Surveys indicated there is no suitable habitat for the western yellow-billed cuckoo in the project area. No areas of dense riparian vegetation were identified, and the species was not detected during field surveys. The project would have no effect on the western yellow-billed cuckoo.

2.12.5.4 Avoidance, Minimization, and Mitigation Measures

Listed Terrestrial Species

In order to avoid and minimize the potential impacts to terrestrial species, Alternative 2 (White Alignment) has been identified as the preferred alternative. This alternative would impact the fewest biological resources. Avoidance and minimization measures for noise impacts associated with blasting would include:

- Helicopters would not fly over the redwood forest section of the project. This would lessen potential noise impacts to northern spotted owl and marbled murrelet.
- Helicopters would not fly over the ridgeline of Confusion Hill. This would avoid the likelihood of noise impacts to the known northern spotted owl breeding activity center on the far side of the ridge.
- Helicopter operation for removal of the mesh netting during the removal of the existing highway would occur outside the breeding season.
- Little or no night work would take place. The only instances in which night work would occur would be for a continuous concrete pour that lasts longer than one construction shift, or for roadway tie-ins.
- Daily work windows would be enforced for noisy work. Any work that is above peak ambient levels would be restricted to the period between 8 AM and 6 PM.

No additional compensatory mitigation beyond revegetation of the project area with native species would be proposed.

Listed Fish Species

Caltrans designed the bridges so that the piers would be above the 100-year floodplain. This avoids permanent impacts to fish passage and fish habitat.

Caltrans would implement the following measures to avoid impacts to listed species:

- Minimizing disturbance to riparian vegetation by cutting willow *(Salix sp.)* at ground level rather than removing them.
- Re-contouring any visible depressions created by the movement of gravels for temporary access construction to avoid the creation of pools that could strand fish as flows recede.
- Placement of a culvert on the southern gravel bar at the transition point between the gravel bar and the dry meadow to preserve natural conditions of that area during temporary construction.
- Implementing a start date of May 1 for in-channel work would avoid impacts to adult salmonids and the potential egg incubation period.
- Removing temporary construction trestles during the period between June 16 and October 31 at the completion of construction.
- Minimizing the number of fords in the wet channel. Heavy equipment shall ford the river twice at each of the north and south access points, both for installation and removal of the temporary trestles.
- Implementing Best Management Practices to avoid stormwater impacts in accordance with the National Pollutant Discharge Elimination System (NPDES) Permit; the Caltrans and General Permits, and the Storm Water Prevention Plan (SWPP) that is required of the contractor under the NPDES permit. The three specific permits required for the project are: 1602 Streambed alteration agreement, 404 Nationwide Permit for temporary access construction, 401 Water Quality Certification; Compliance with the conditions of these permits would minimize potential impacts to water quality.
- Maintaining passage for out-migrating salmonid juveniles by allowing no dewatering of the river channel.
- Minimizing noise impacts during pile driving by limiting the pile size.
- Biofiltration (swales and strips): water runoff from the new highway alignment and the bridges would be captured and piped to rocked-lined ditches, where sediments and pollutants would be deposited. The water would naturally filter into the ground. The decommissioning of the existing U.S. 101 would include the removal of all man-made features, recontouring of the landscape, and revegetation. Detention and filtration bases would not be installed and maintained for the removed highway. Where possible, a berm would be place below the existing slide (at existing highway elevation) to capture falling material. This berm and the

soil and rocks collected behind it would not be cleared, cleaned or maintained. Best Management Practices to avoid stormwater impacts in accordance with the National Pollutant Discharge Elimination System (NPDES) Permit; the Caltrans and General Permits, and the Storm Water Prevention Plan (SWPP) would be included (where feasible) for the removed highway.

2.12.5.5 Cumulative Impacts

Conditions and activities occurring on private lands exert a greater influence on river flows, temperatures and sediment contribution to the habitat of Southern Oregon/Northern California Coast Coho salmon, California Coastal Chinook salmon, and Northern California steelhead than those occurring on public lands in the Eel River Basin. Agriculture, timber harvest, water diversions and withdrawals, urbanization, road building, and livestock grazing have resulted in loss of riparian vegetation, migration barriers, increased water temperatures, increased nutrient loading, loss of pool habitat, and increased fine sediment. Relocation of US 101 at Confusion Hill would not contribute to cumulative losses of riparian vegetation, would not create a migration barrier, and would not increase water temperatures or nutrient loading. The construction location of the bridges above the 100-year floodplain would avoid permanent impacts to turbidity, water supply, and direct mortality to salmonids. Cumulative impacts on listed species or habitats would not be expected to occur.

2.12.6 Invasive Species

2.12.6.1 Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.12.6.2 Affected Environment

One invasive species was identified in the project area (French Broom). Construction work would not be conducted in the vicinity of this weed.

2.12.6.3 Impacts

Based on construction regulations (see section 2.14.4 below) impacts associated with invasive species would not be anticipated.

2.12.6.4 Avoidance, Minimization, and Mitigation Measures

In compliance with the Executive Order on Invasive Species, E.O. 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the project would not use species listed as noxious weeds. Precautions would be taken if invasive species are found (by a project monitoring biologist) in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur. Furthermore, in order to prevent invasive species from other parts of the state to establish in the project vicinity, construction equipment would be cleaned before entering the project site.

2.12.6.5 Cumulative Impacts

Cumulative impacts would not be anticipated because measures would be taken to remove invasive species prior to construction.

2.13 Cumulative Impacts Summary

This section evaluates the potential for the project to have a cumulative effect on resources.

2.13.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment examines the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act Guidelines, Section 15130 describes under what conditions a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under the California Environmental Quality Act, can be found in Section 15355 of the California

Environmental Quality Act Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act, can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

2.13.2 Summary of Potential Cumulative Impacts

Cumulative impacts for each resource have been addressed throughout the document. In summary, studies indicate that the proposed project would not contribute to a cumulative impact on any resource.

Chapter 3 California Environmental Quality Act (CEQA) Evaluation

Determining Significance Under California Environmental Quality Act

Please refer to the differences between the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) in the summary (page iv) regarding significance and the roles of the Federal Highway Administration and Caltrans.

Discussion of Significant Impacts

After completion of the technical reports and the Environmental Impact Report it was determined the project would not have any "significant" environmental effects or "unavoidable significant" environmental effects. Furthermore, the project would not induce growth.

Mitigation Measures For Significant Impacts Under CEQA

Given no significant impacts have been identified, mitigation measures for significant impacts would not be anticipated.

Chapter 4 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including: project development team meetings, interagency coordination meetings, and public participation in the value analysis process. This chapter summarizes the results of the Department's efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

Consultation and Coordination with Public Agencies

Public agencies were involved in a Project Alternative Value Analysis (completed March 2004), in Project Development Team meetings, and at public open houses. In addition, numerous contacts were made with representatives from individual agencies to discuss specific issues, including, the California Department of Fish and Game, the US Fish and Wildlife Service, US Army Corps of Engineers, the Regional Water Quality Control Board, the National Oceanographic and Atmospheric Administration, the California Department of Parks and Recreation, the Mendocino Council of Governments, the Mendocino County Department of Planning and Transportation, and the Federal Highway Administration.

Chronology of Public Meetings

<u>November 4,2003 Field review meeting</u>
Caltrans and a representative from the United States Army Corps of Engineers met at the Confusion Hill slide and discussed ordinary high water level elevations, and the potential the potential impacts associated with the north bridge.

<u>November 6, 2003 – Public Open House</u>
Twenty-three persons attended: Issues addressed included the current status of the project development process, including the environmental document and advance design efforts, and the pros and cons of each alternative being studied. The public was invited to participate in the Value Analysis Study.

December 3, 2003 – Value Analysis kickoff meeting

Forty-five persons attended, including members of the interested public, affected landowners, and public agency representatives. Issues addressed included access to Red Mountain Creek Road; impacts to local businesses; impacts to fish; visual concepts of the new structures (e.g., see-through rails); cultural resource impacts; impacts to the river; helicopter access to water sources for fire suppression; impacts to swimming areas; native and exotic vegetation; four-lanes vs. two-lanes; wildlife connectivity; emergency vehicle access.

March 23, 2004

Caltrans conducted a "Value Analysis Recommendation Presentation" in Garberville. The purpose of the presentation was to elicit public comment on the Value Analysis Team's recommendation to pursue Alternative 2 (White Alignment) as the preferred design.

Coordination to Date

The coordination described above has resulted in the following:

- the identification of various alternative alignments that avoid and minimize resource impacts
- the elimination of three alternative alignments from further analysis
- the project development team (including external agencies) identified Alternative 1 (White Alignment) as the preferred alternative
- a scenario that best preserves resources for the future disposition of the existing highway

Status of Approvals and Permits

Agency	Permit/Approval	Status
National Oceanographic and Atmospheric Administration	Section 7 Consultation for Threatened and Endangered Fish Species	Biological Assessment submitted after draft EIR/EA circulation
United States Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species	Biological Assessment submitted after draft EIR/EA circulation
National Park Service Wild and Scenic River	Concurrence letter stating there would be no effect on the South Fork of the Eel River	Letter received April 19, 2005
California Department of Fish and Game	Section 2080.1 Agreement for Threatened and Endangered Species	Obtained after draft EIR/EA circulation
California State Historic Preservation Officer	California State Historic Preservation Officer Concurrence on eligibility	Approved
Army Corps of Engineers	404 certification for discharge of dredged or fill material into the South Fork of the Eel River	Obtained prior to construction
California Department of Fish and Game	1602 Streambed Alteration Agreement	Obtained prior to construction
Regional Water Resources Board	National Pollution Discharge Elimination System (NPDES), storm water permit, and 401 certification compliance	Obtained prior to construction

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Appendix A The California Environmental Quality Act Checklist

Supporting documentation for all the California Environmental Quality Act checklist determinations is provided in Chapter 2 of this draft Environmental Impact Report/ Environmental Assessment. Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

Environmental Significance Checklist

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. "A NO IMPACT" answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included in Section VI following the checklist. The words "significant" and "significance" used throughout the following checklist are related to the California Environmental Quality Act, not the National Environmental Policy Act, impacts.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
I. Aesthetics (See Section 2.7) Would the project:				
a) Have a substantial adverse effect on a scenic vista?		x		
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?		x		
c) Substantially degrade the existing visual character or quality of the site and its surroundings?		x		
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				x
II. Agricultural Resources In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				x
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				x
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				x
III. Air Quality (See Section 2.12) Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	x
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	x
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	x
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	x
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	x
IV. Biological Resources (See Section 2.13) Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	x	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	x	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	x
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors,	☐	x	☐	☐

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
or impede the use of native wildlife nursery sites?				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	x	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	x
V. Cultural Resources (See Section 2.8) Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	x
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	x
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	x
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	x
VI. Geology and Soils (See Section 2.10) Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	x
ii) Strong seismic ground shaking?	☐	☐	☐	x
iii) Seismic-related ground failure, including	☐	☐	☐	x

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
liquefaction?				
iv) Landslides?		x		
b) Result in substantial soil erosion or the loss of topsoil?		x		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				x
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				x
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				x
VII. Hazards and Hazardous Materials (See Section 2.11) Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				x
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				x
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				x
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				x
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				x
f) For a project within the vicinity of a private airstrip,				x

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
would the project result in a safety hazard for people residing or working in the project area?				
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	x
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	x
VIII. Hydrology and Water Quality (See Section 2.9) Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	x
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	x
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	x
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	x
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	x
f) Otherwise substantially degrade water quality?	☐	x	☐	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood	☐	☐	☐	x

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Insurance Rate Map or other flood hazard delineation map?				
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	x
i) Expose people or structures to a significant risk of loss injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	x
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	x
IX. Land Use and Planning (See Section 2.1) Would the project:				
Physically divide an established community?	☐	☐	☐	x
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	x
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	x
X. Mineral Resources Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	x
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	x
XI. Noise Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other	☐	☐	☐	x

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
agencies?				
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	x
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	x
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	x
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	x
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	x
XII. Population and Housing (See Section 2.4) Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	x
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	x
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	x
XIII. Public Services (See Section 2.5)				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the				

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	x
Police protection?	☐	☐	☐	x
Schools?	☐	☐	☐	x
Parks?	☐	☐	☐	x
Other public facilities?	☐	☐	☐	x
XIV. Recreation (See Section 2.4)				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	x
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	x
XV. Transporation/Traffic Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	x
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	x
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	x

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	x
e) Result in inadequate emergency access?	☐	☐	☐	x
f) Result in inadequate parking capacity?	☐	☐	☐	x
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	x
XVI. Utilities and Service Systems Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	x
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	x
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	x
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	x
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	x
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	x
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	x

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
XVII. Mandatory Findings of Significance				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		x		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				x
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				x

Appendix B National Park Service Letter

United States Department of the Interior
NATIONAL PARK SERVICE
Pacific West Region
1111 Jackson Street
Oakland, CA 94607

April 18, 2005

Steve Croteau, Associate Environmental Planner
California Department of Transportation
1656 Union Street
Eureka, CA 95501

Subject: Confusion Hill Highway Relocation Project

Dear Mr. Croteau:

This letter is in regards to the proposed "By-Pass Slide" project at Confusion Hill, which would include the construction of two bridges over the South Fork of the Eel River. The National Park Service (NPS) will be determining if the project is consistent with the National Wild and Scenic Rivers Act (WSRA).

The Eel River is a component of the National Wild and Scenic Rivers System. Section 7 of the WSRA prohibits federal agencies from "assist[ing] by loan grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established."

Our understanding of the project is as follows:

> The project is located in Mendocino County on Route 101 from eight miles north of Leggett (PM 98.9) to 18 miles south of Garberville (PM 100.8) in northern Mendocino County. The project covers a distance of 1.9 miles, starting near the Campbell Brothers at Confusion Hill and Redwoods River Resort businesses at the southern limits and ending near Red Mountain Creek at the northern limits. Within the project limits, the existing segment of Route 101 is winding, with curves having design speeds as low as 30 mph. Lane widths are typically 12 ft, with paved shoulder widths four feet or less.
>
> The project would construct a two-lane conventional highway facility, bypassing an existing slide by realigning Route 101 west and constructing two bridges over the South Fork of the Eel River. The new facility (including the bridges) would have two 12-foot lanes and eight-foot shoulders. The columns supporting the bridges would be vertical (south bridge) and slant leg (north bridge) in order to avoid the river channel, and all permanent structures would be constructed above the ordinary high water mark.

The values for which the Eel River was designated are primarily its "outstanding remarkable" anadromous fishery. Secondary factors in designation were the river's notable recreational and scenic values.

The NPS considers water resources projects to include projects involving construction and construction related activities in the bed or on the banks of the river. This project will likely

involve construction activities within the bed or on the banks of the river and will therefore be considered a water resources project, which is subject to review under Section 7 of the WSRA.

The following items are areas of special concern related to the Eel's outstanding remarkable values. If these items are addressed then the confusion hill by-pass project will not have a, "direct and adverse effect on the values for which such river was established" as outlined in Section 7 of the WSRA.

- Sedimentation: Both from the project spoils and from further deterioration of current roadway structures and impacted substrate.
- Buyouts: Conservation and/or Recreation easements should be considered along the current right-of-way to protect the viewshed.
- Run-off and Catchment: Processing of runoff from bridges (diesel, oil, etc.).
- Landscaping: Use only native species from local stock (immediate surroundings.)
- Shade Protection: Recovery of shade protection on both sides of the river. Mitigate current solar gain due to loss of foliage on Confusion Hill.
- Summer Cold Water Discharge: In regards to springs that run out of the existing Confusion Hill and incrementally add to the river flow.
- Disposal of Spoils from Bridge Project: Must address the disposal of soil, rock and vegetation from the new by-pass corridors. This ties in with sedimentation concerns.
- Public Access: Impacts to recreational access and scenic values on the Eel River during and following construction need to be addressed. Also, there should be no loss of existing public access to the river during and following construction.
- Fire and Rescue: Access for Emergency Response should be maintained throughout the project.
- Fish: Anadromous fish (listed salmonids) are a designated outstandingly remarkable value. Periods of special concern are spawning runs from first major rains in the fall (mid October) through March, plus low temperatures and low turbidity during the summer months

In meeting with the Project Manager and Environmental Coordinator on March 30, 2005, it is believed that these concerns are addressed in the project scope and document. Final determination of the project's concurrence with Section 7 of the WSRA will be made once the Draft Environmental Document has been fully reviewed. If the project scope should change, further analysis by the National Park Service would be required.

Sincerely,

Stephen M Bowes

Stephen M. Bowes, Hydropower Coordinator
National Park Service
1111 Jackson Street, Suite 700
Oakland, CA 94607

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
1120 N STREET
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Flex your power!
Be energy efficient!

January 14, 2005

TITLE VI
POLICY STATEMENT

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

WILL KEMPTON
Director

"Caltrans improves mobility across California"

Appendix D Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

The California Department of Transportation (Caltrans) would provide relocation assistance to any person, business, farm or non-profit organization displaced as a result of the Caltrans acquisition of real property for public use. Caltrans would assist residential displacees in obtaining comparable decent, safe and sanitary replacement housing by providing current and continuing information on sales price and rental rates of available housing. Non-residential displacees would receive information on comparable properties for lease or purchase.

Residential replacement dwellings would be in equal or better neighborhoods, at prices within the financial means of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, displacees would be offered comparable replacement dwellings that are open to all persons regardless of race, color, religion, sex or national origin, and are consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance would also include supplying information concerning federal and state assisted housing programs, and any other known services being offered by public and private agencies in the area.

The Business and Farm Relocation Assistance Program provides aid in locating suitable replacement property for the displacee's farm or business, including, when requested, a current list of properties offered for sale or rent.

The above explanation is general in nature and is not intended to be a complete explanation of relocation regulations. Any questions concerning relocation should be addressed to Caltrans. Any persons to be displaced would be assigned a relocation advisor who would work closely with each displacee in order to see that all payments and benefits are fully utilized, and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments.

Appendix E Impacts Avoidance and Minimization Summary

In order to avoid and minimize impacts to biological, cultural, and visual resources, Alternative 2 (White Alignment) was chosen. Alternative 2 would impact the fewest 36 inch and greater diameter at breast height redwood trees and would avoid all redwood trees greater than 41 inches in diameter at breast height. Furthermore, Alternative 2 would not require the removal of businesses and residences, and would avoid all cultural resources.

Given the project would not substantially reduce fish or wildlife habitat, threaten or eliminate a plant or animal community, or substantially reduce the number or restrict the range of a threatened, endangered or rare species, mitigation measures would not be anticipated.

Environmental commitments to avoid and minimize impacts would be work windows, water quality measures, limits on pile size for temporary access trestles, and revegetation.
For fish protection, temporary trestle would be constructed in May to avoid adult salmonids and potential incubating eggs, and be removed between June 16- October 31.

Permits and Approvals

Agency	Permit/Approval	Status
National Oceanographic and Atmospheric Administration	Section 7 Consultation for Threatened and Endangered Fish Species	Biological Assessment submitted after draft EIR/EA circulation
United States Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species	Biological Assessment submitted after draft EIR/EA circulation
National Park Service Wild and Scenic River	Concurrence letter stating there would be no effect on the South Fork of the Eel River	Letter received April 19, 2005
California Department of Fish and Game	Section 2080.1 Agreement for Threatened and Endangered Species	Obtained after draft EIR/EA circulation
California State Historic Preservation Officer	California State Historic Preservation Officer Concurrence on eligibility	Approved
Army Corps of Engineers	404 certification for discharge of dredged or fill material into the South Fork of the Eel River	Obtained prior to construction
California Department of Fish and Game	1602 Streambed Alteration Agreement	Obtained prior to construction
Regional Water Resources Board	National Pollution Discharge Elimination System (NPDES), storm water permit, and 401 certification compliance	Obtained prior to construction

Appendix F List of Technical Studies

- Biological Resources
- Cultural Resources
- Air Quality
- Noise
- Geotechnical
- Water Quality
- Visual Resources
- Community Impact Analysis